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ANATOMICAL DIAGRAMS

FOR ART STUDENTS.

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ANATOMICAL DIAGRAMS

FOR THE USE OF ART STUDENTS.

ARRANGED WITH ANALYTICAL NOTES
AND DRAWN OUT BY

JAMES M. DUNLOP, A.R.C.A.,

ANTIQUE AND LIFE CLASS MASTER AND LECTURER ON ARTISTIC
ANATOMY IN THE GLASGOW SCHOOL OF ART.

WITH INTRODUCTORY PREFACE BY

JOHN CLELAND, M.D., LL.D., F.R.S.,

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To

THE CHAIRMAN AND GOVERNORS OF THE
GLASGOW SCHOOL OF ART,
IN WHOSE SCHOOL I HAVE BEEN LECTURER
ON ARTISTIC ANATOMY
FOR A NUMBER OF YEARS;
TO THE HEADMASTER MR. FRANCIS H. NEWBERY
AND TO THE STUDENTS,
THIS BOOK IS RESPECTFULLY DEDICATED
BY THEIR OBEDIENT SERVANT,

JAMES M. DUNLOP.

GLASGOW, 1899.

PREFACE.

SCIENCE AND ART are indeed sisters, but they are very different in their tastes, and it is no easy task to cultivate with advantage the favour of both. Artistic Anatomy is in its nature a scientific pursuit, dealing partly in explicit observation of details of form, partly in the explanation of the causes producing them; while the details themselves are among those with which the followers of Art require to be familiar; and are sometimes of little apparent scientific importance save from an artistic point of view. In these circumstances it is little to be wondered at that this department of knowledge has not been more fully explored.

Properly conceived of, Artistic Anatomy undertakes the systematic study of the particulars of superficial form, the accurate description of them one by one, and the investigation of the structural and functional causes on which they depend.

Among the phenomena to be considered, the proportions of the great divisions of the body one to another claim an important place, and have justly received attention from remote times. Rules have been laid down by which an ideal standard has been sought to be fixed, the deviations produced by age and sex being taken into account; and while such standards are more or less artificial, and not to be too slavishly followed to the extent of an unnatural uniformity, they certainly are invaluable as expressing a mean which cannot be deviated from to more than a limited extent without transgressing the laws of nature and producing deformity.

Each part of the body has also its particular proportions, and the study of proportions passes gradually into that of details of shape. All these details are capable of being taken one by one and systematically described. But this cannot be done either accurately or instructively without reference to the subjacent structures on which they depend, and the actions governing the conditions of such structures.

Subcutaneous prominences of bone afford so many constant points in the surface of the figure, while the softer subcutaneous tissues sometimes occur in masses of such firmness as to be but little affected by change of attitude, and in other instances are flaccid, pendulous, wrinkled or stretched. But the muscles and their tendons produce the greatest variations of local form in different persons and in different attitudes; muscular substance swelling when in action, while tendons are incapable alike of swelling and of altering their total length, but may stand out when they are tightened over the concavity formed by the bending of a joint. Also lines of attachment to subcutaneous bone, themselves incapable of change of form, may in different circumstances be prominent or sunk according to the degree of swelling of the muscles around. Besides all this it must be noted that muscular contractions cause, especially in the face, lines, elevations, and depressions, not corresponding to the shapes of the muscles, but produced by the displacement of skin and subcutaneous fat, as illustrated by the elevation of the cheek and lower eyelid in laughter, and by the formation at the same time of the lines called crows' toes, and it does seem possible that a more careful analysis than has been attempted of the lines and displacements occurring in different expressions might yield better results than are to be obtained from such works as those of Le Brun, Sir Charles Bell, Piderit and Darwin, however valuable these may be. It may also be mentioned that considerations in connection with balance, respiration, mental capacity and race fall within the scope of Artistic Anatomy.

If these views are allowed to be correct, it will be admitted that the field of Artistic Anatomy has never been covered; and if this task be ever undertaken it must be for its own sake, aiming at independent completeness, and not at mere assistance to Artists. Much will thus be brought to light, in all probability now unsuspected, and Art and Philosophy will both be gainers.

While, however, Art is one thing and Artistic Anatomy quite another, and while it is to be acknowledged that beautiful representations may be achieved without any anatomical knowledge, this only shows how much can be done by practised observation led on by intuitive appreciation which, often unconsciously, guides the mind to the accomplishment of its aims. But such success is neither easy nor to be depended on, and the general average thus obtainable cannot be expected to be so good as would be obtained if observation were assisted by acquaintance with the meanings of the shapes observed. The greatest masters, including notably Michelangelo, Leonardo da Vinci and Raphael, have found that to give intelligence to their efforts at representation, and enable them to understand the indispensable relations of parts it was necessary to call in the aid of dissection. For the eye, though often, even when well trained, at fault, especially when invention is brought into play, is yet subtle to detect instinctively the unsatisfactoriness of error.

It seems sometimes to be supposed that Artistic Anatomy is merely Anatomy made easy for Artists by omitting explicit details and all mention of internal organs,—superficial Anatomy in both senses of the word. But what is superficial in the sense of being slovenly is of little use to any one. The Professional Anatomist addressing his discourse to Artists, and desiring to give them the information for which they crave, cannot help seeing at once that there is much internal structure which can have no possible bearing on Art, but he will fail altogether in his purpose if he does not note that the artist seeks for direction with regard to details which are often of small interest to the surgeon, and have received little attention from Anatomists.

Two of the sets of considerations most important to the Artist will easily be seen to be, one, the part played by the skeleton in determining the external form, and another, the precise extent and attachments of superficial muscles, together with the disposition of muscular fibre and tendon in individual muscles. It is principally to these two considerations that Mr. Dunlop directs attention in the following pages, appealing to the eye, instead of depending on description; and it appears to me that the method which he has selected, and the manner in which he has carried it out, provide for the Art Student a singularly compendious and desirable book, easily consulted, and occupying ground which has not hitherto been taken up. It is not the whole subject of Artistic Anatomy, but only one department of it which is here dealt with. The facts taught are brought out with diagrammatic simplicity and precision which cannot fail to bring them clearly and prominently before the student, thus giving him immense assistance. I have pleasure therefore in anticipating for this useful work a great success.

JOHN CLELAND.

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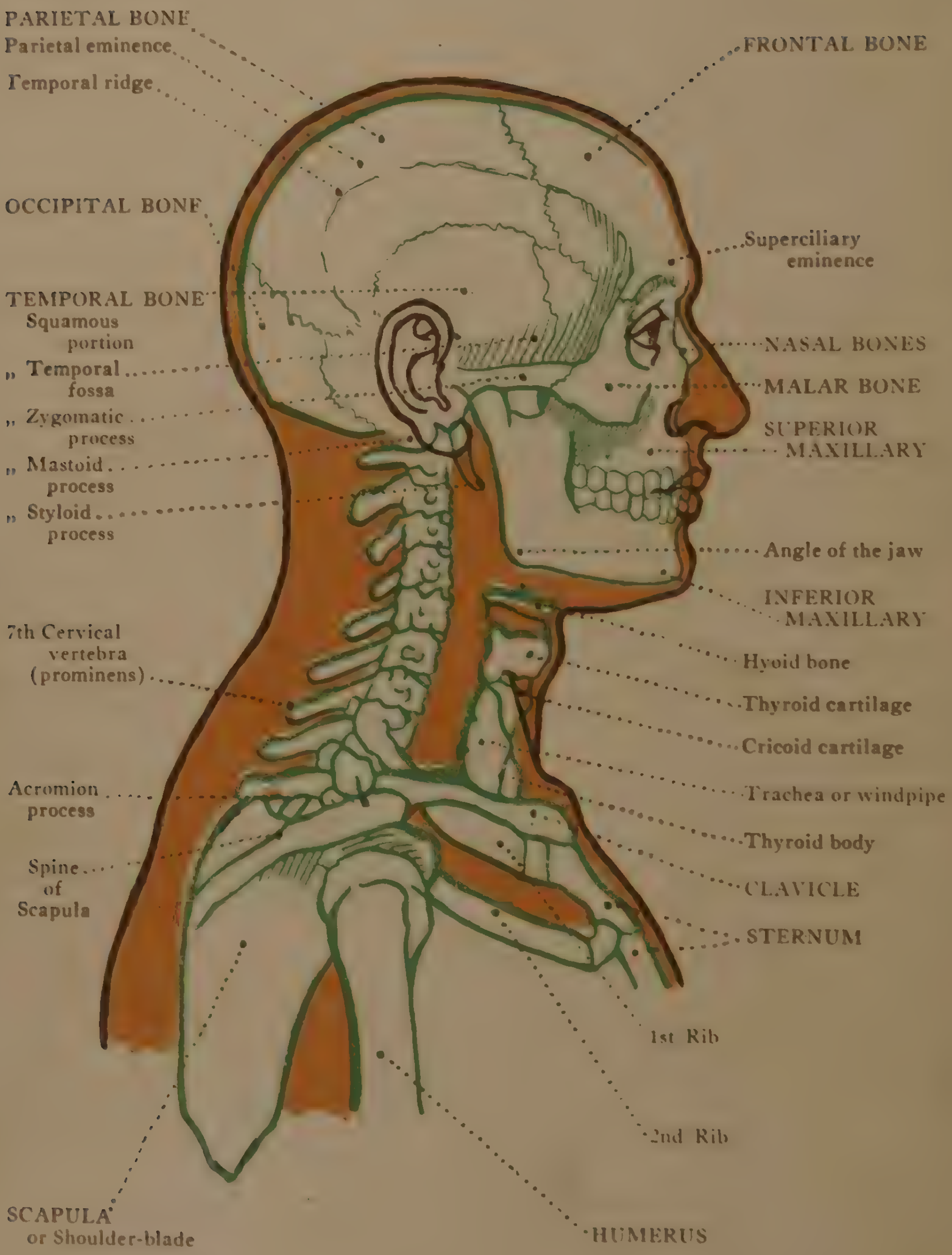
ANATOMICAL DIAGRAMS

SIDE VIEW OF THE HEAD AND NECK.



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SIDE VIEW OF THE HEAD AND NECK.

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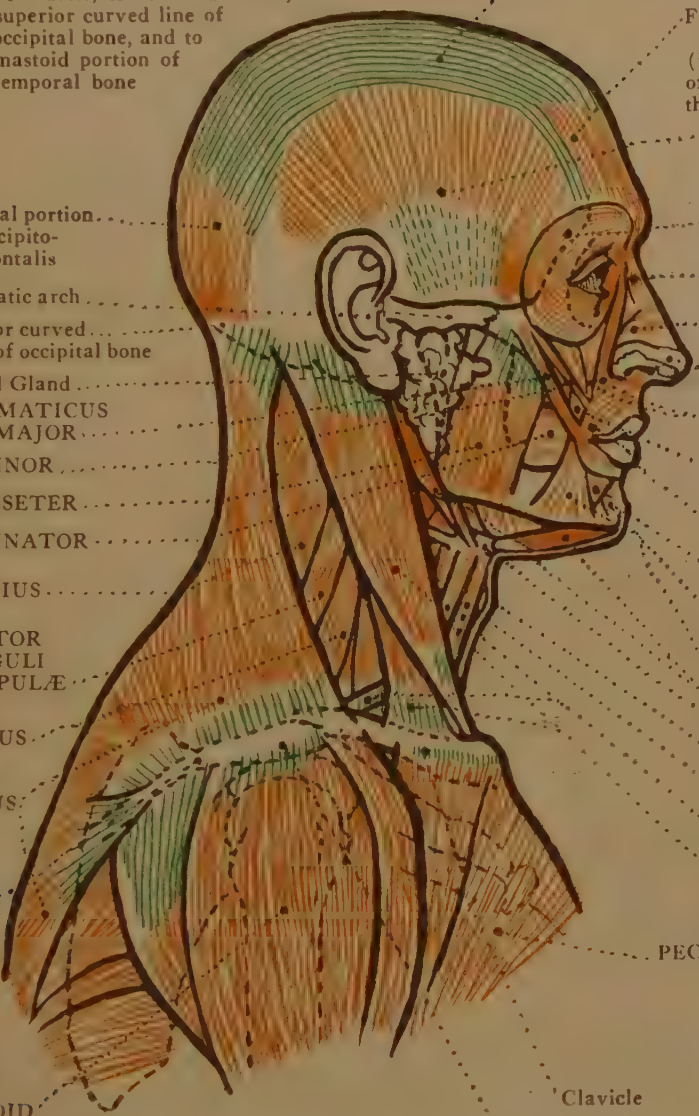
OCCIPITO—FRONTALIS
The occipital portion, the fixed point of the muscle, is attached below, to the superior curved line of the occipital bone, and to the mastoid portion of the temporal bone
Epicranial aponeurosis uniting the two portions of the occipito-frontalis
Frontal portion of occipito-frontalis (inserted into the skin of the eyebrows and the root of the nose)
TEMPORALIS (covered by fascia, it lies in the temporal fossa)
Occipital portion of occipito-frontalis
ORBICULARIS PALPEBRARUM
PYRAMIDALIS NASI
Zygomatic arch
Superior curved line of occipital bone
COMPRESSOR NARIS
Parotid Gland
Cartilages of the nose
ZYGOMATICUS MAJOR
LEVATORS of upper lip and wing of nose
MINOR
LEVATOR of angle of the mouth
MASSETER
ORBICULARIS ORIS
BUCCINATOR
DEPRESSOR of lower lip
SPLENIUS
DEPRESSOR of angle of mouth
LEVATOR ANGULI SCAPULÆ
LEVATOR MENTI
DIGASTRICUS
SCALENUS
Hyoid bone
Pomum-Adami
TRAPEZIUS
STERNO-HYOID
OMO-HYOID
STERNO-MASTOID
Spine of Scapula
PECTORALIS MAJOR
DELTOID
Clavicle
Acromion process of scapula

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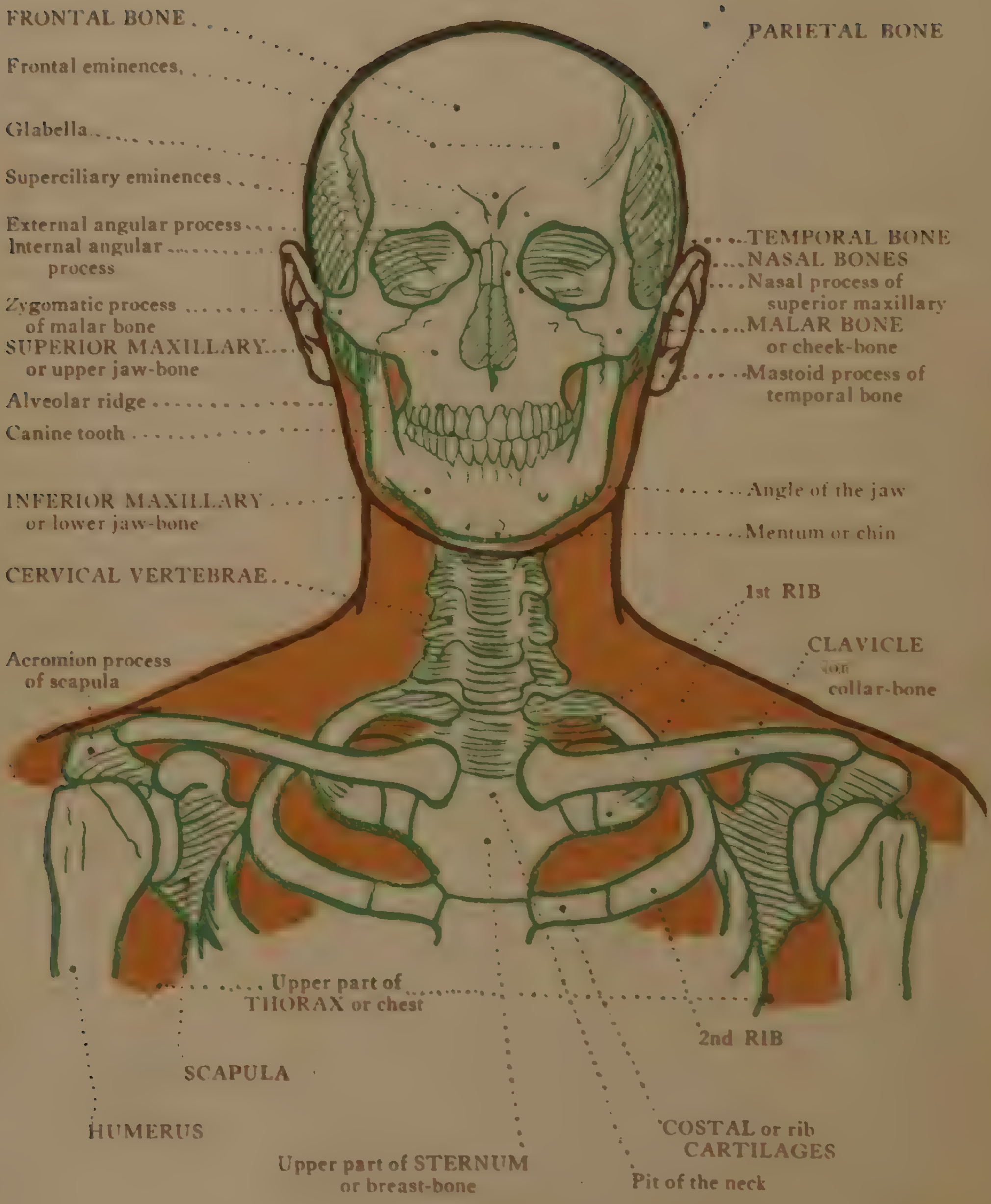
FRONT VIEW OF THE HEAD AND NECK.



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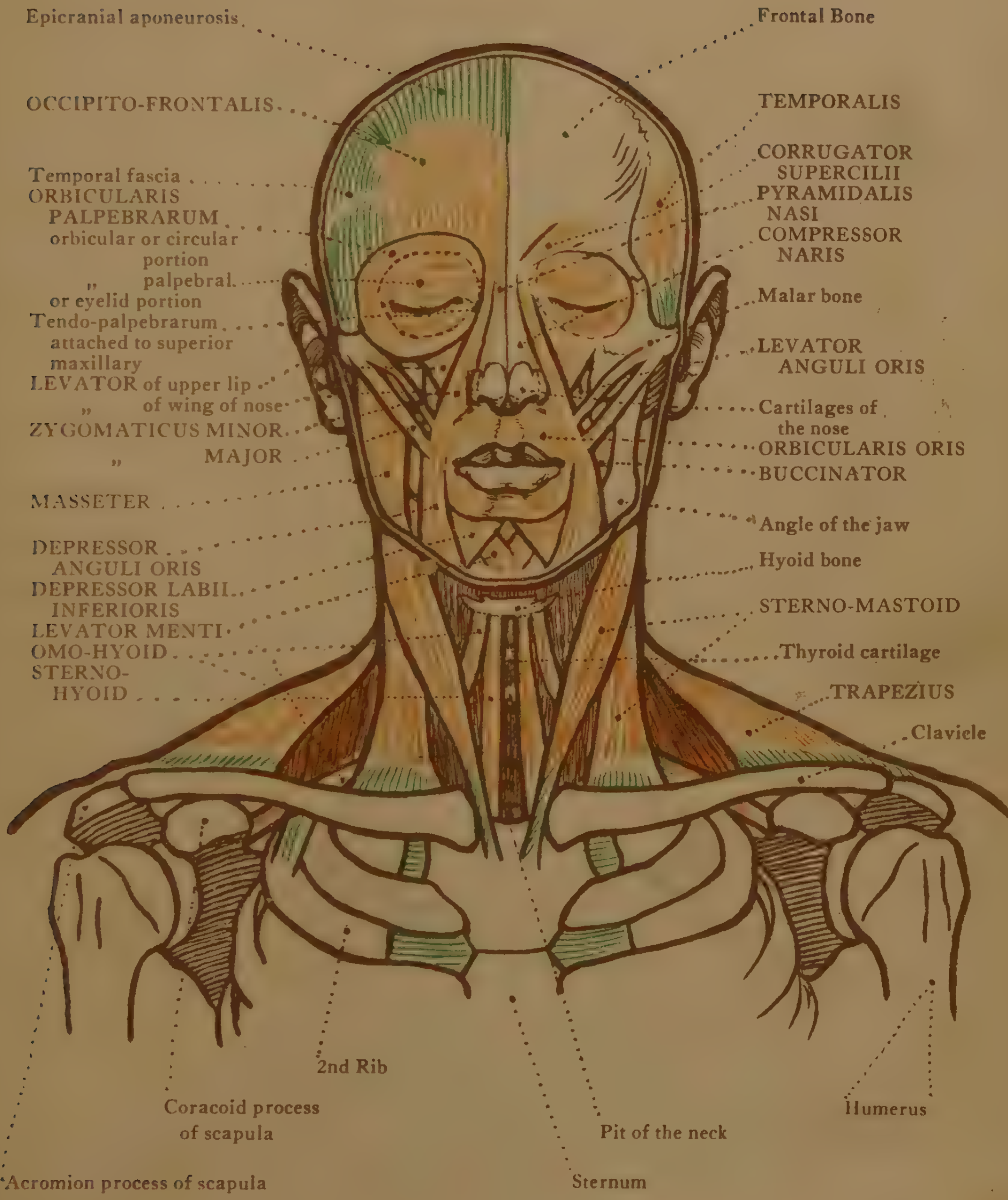
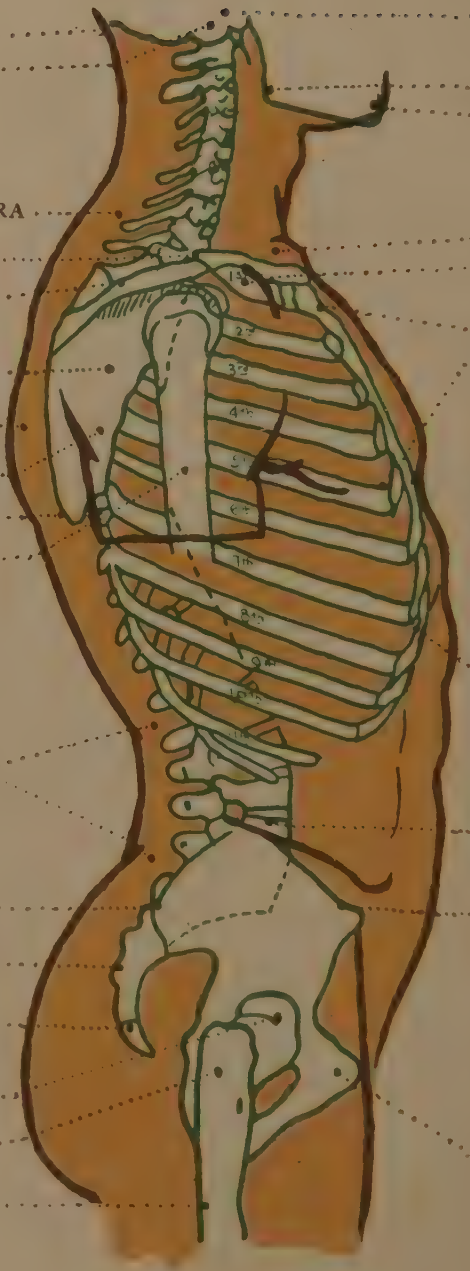
FRONT VIEW OF THE HEAD AND NECK.

MUSCLES.



SIDE VIEW OF THE TRUNK.


OCCIPITAL BONE
Mastoid process of temporal bone
Spinous process of 7th CERVICAL VERTEBRA
Acromion process of scapula
Spine of scapula
SCAPULA
Base of scapula
Axillary border of scapula
Inferior angle, of scapula
HUMERUS
Spines of the LUMBAR VERTEBRÆ
Posterior superior iliac spine
SACRUM
COCCYX
Head of Femur
Great trochanter
FEMUR
Styloid process of temporal bone
Angle of the jaw
Mentum or chin
CLAVICLE
1st RIB
STERNUM
Costal cartilages
Iliac Crest
Pubis
1st
2nd
3rd
4th
5th
6th
7th
8th
9th
10th
11th

THORAX or chest, the cavity enclosed by the Ribs with their cartilages and the Sternum in front, and the Dorsal vertebræ behind

PELVIS, composed of the Innominate, haunch, or hip-bones (united by cartilage at the pubis in front) together with the Sacrum and Coccyx behind, the whole forming a complete bony girdle in which there is no movement between the several parts

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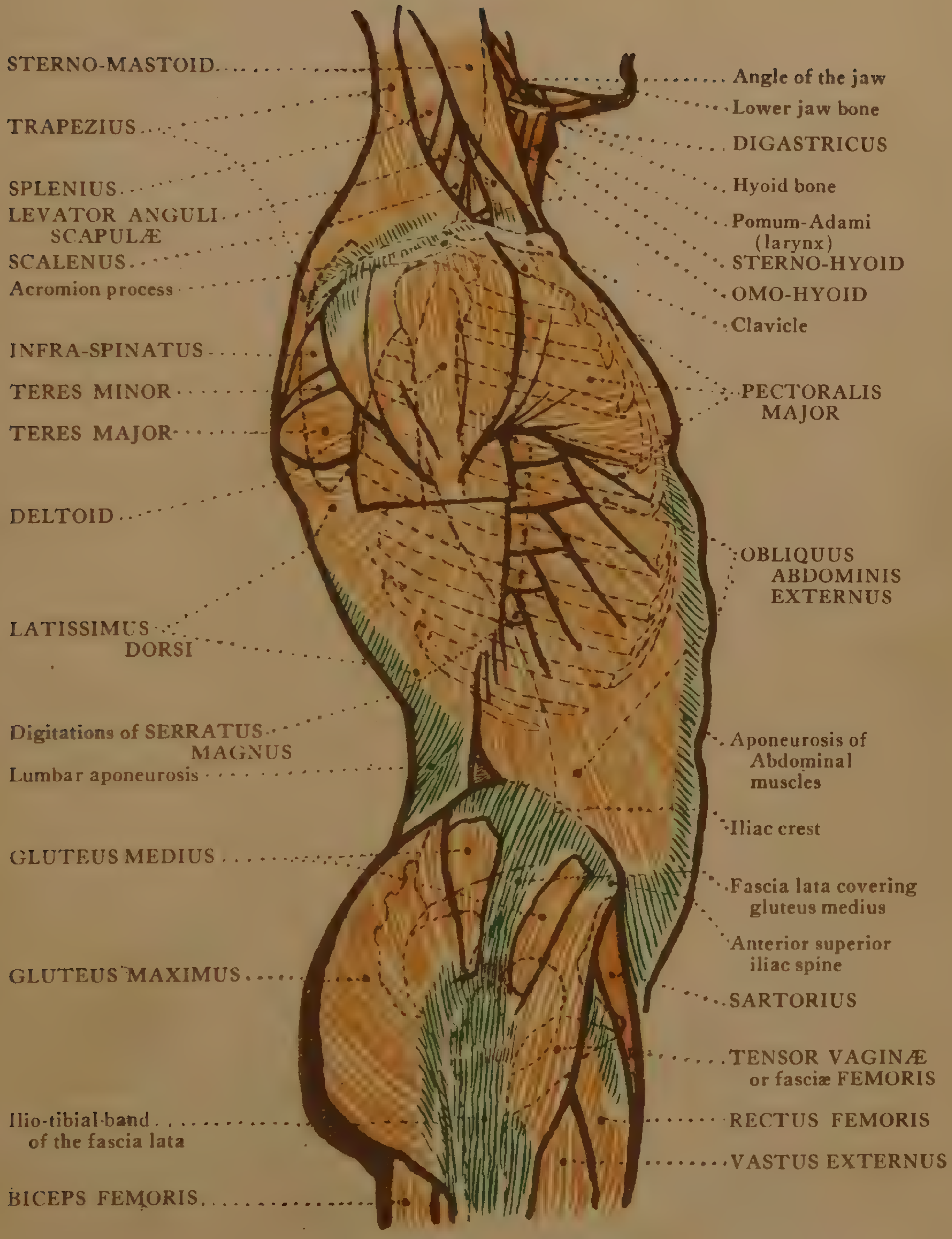
SIDE VIEW OF THE TRUNK.



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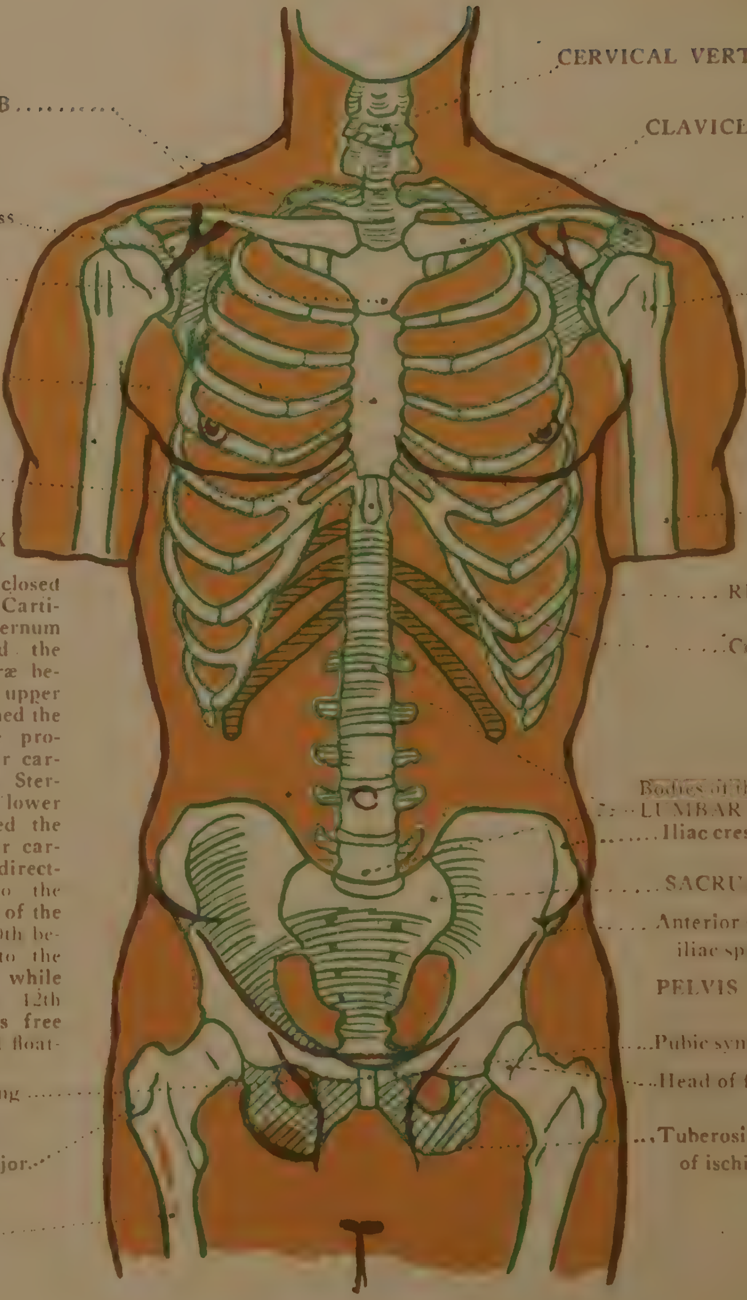
FRONT VIEW OF THE TRUNK.



THORAX or chest, the cavity enclosed by the Ribs, Cartilages, and Sternum in front, and the Dorsal vertebræ behind. — The upper seven ribs, named the true ribs, are prolonged by their cartilages to the Sternum. — The lower five are named the false ribs, their cartilages are not directly attached to the Sternum, those of the 8th, 9th and 10th being attached to the next above, while the 11th and 12th have their tips free and are named floating ribs.

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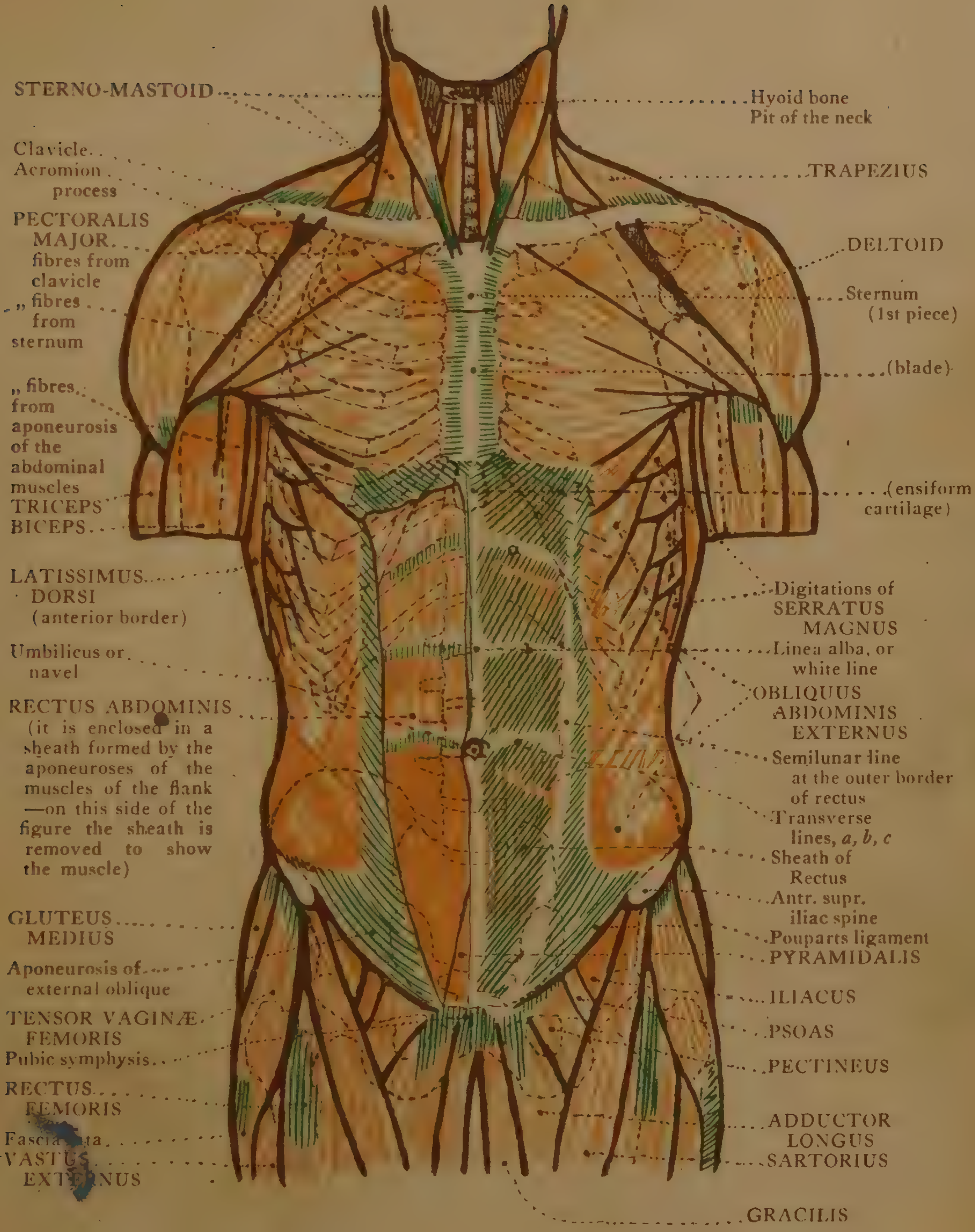
FRONT VIEW OF THE TRUNK.

MUSCLES.


STERNO-MASTOID
Clavicle
Acromion process
PECTORALIS MAJOR. fibres from clavicle
„ fibres from sternum
„ fibres from aponeurosis of the abdominal muscles
TRICEPS
BICEPS
LATISSIMUS DORSI (anterior border)
Umbilicus or navel
RECTUS ABDOMINIS (it is enclosed in a sheath formed by the aponeuroses of the muscles of the flank—on this side of the figure the sheath is removed to show the muscle)
GLUTEUS MEDIUS
Aponeurosis of external oblique
TENSOR VAGINÆ FEMORIS
Pubic symphysis
RECTUS FEMORIS
Fascia lata
VASTUS EXTERNUS
Hyoid bone
Pit of the neck
TRAPEZIUS
DELTOID
Sternum (1st piece)
(blade)
(ensiform cartilage)
Digitations of SERRATUS MAGNUS
Linea alba, or white line
OBLIQUUS ABDOMINIS EXTERNUS
Semilunar line at the outer border of rectus
Transverse lines, a, b, c
Sheath of Rectus
Antr. supr. iliac spine
Pouparts ligament
PYRAMIDALIS
ILIACUS
PSOAS
PECTINEUS
ADDUCTOR LONGUS
SARTORIUS
GRACILIS

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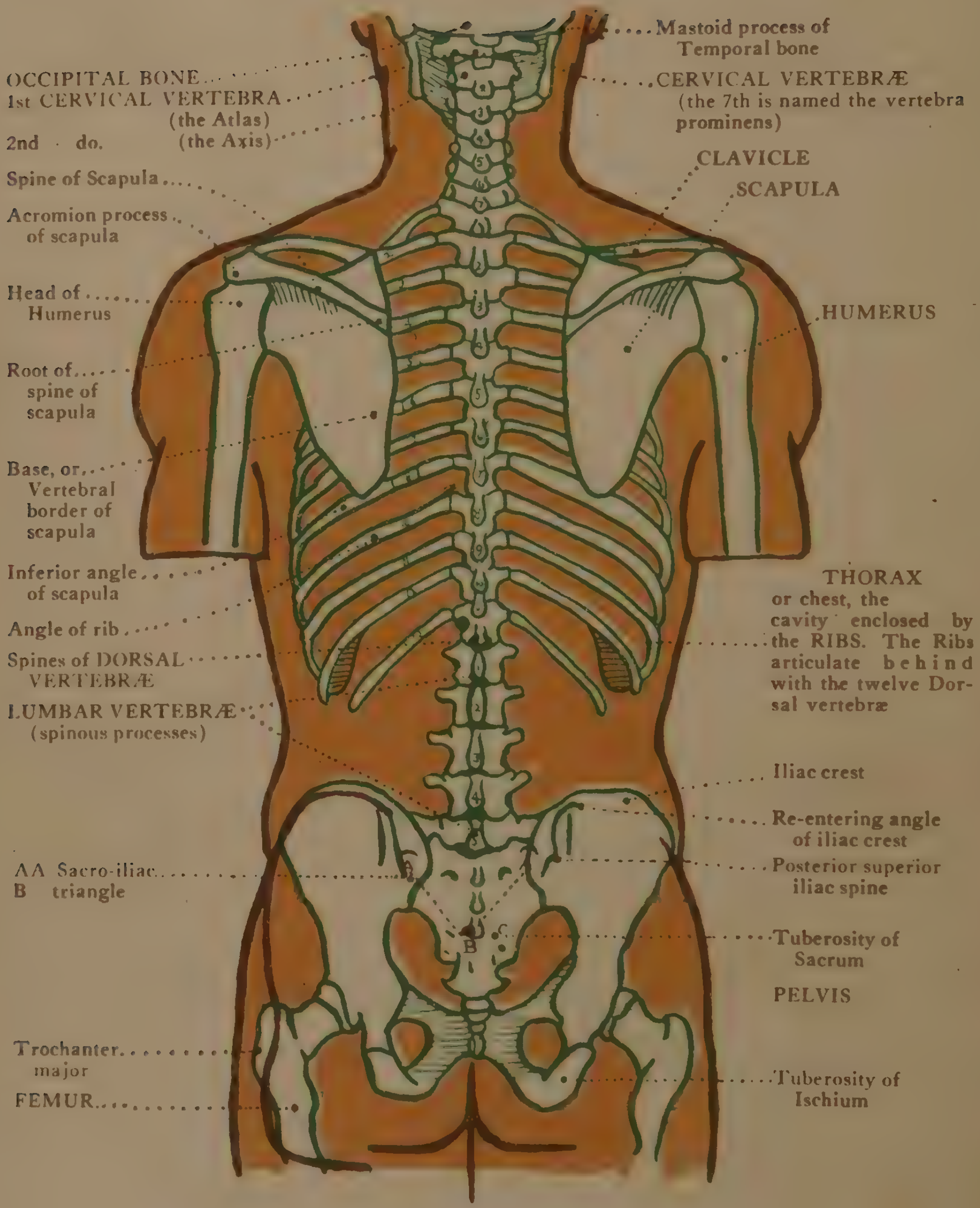
BACK VIEW OF THE TRUNK.


Mastoid process of Temporal bone
OCCIPITAL BONE
1st CERVICAL VERTEBRA (the Atlas)
2nd do. (the Axis)
CERVICAL VERTEBRÆ (the 7th is named the vertebra prominens)
Spine of Scapula
CLAVICLE
SCAPULA
Acromion process of scapula
Head of Humerus
HUMERUS
Root of spine of scapula
Base, or, Vertebral border of scapula
Inferior angle of scapula
THORAX or chest, the cavity enclosed by the RIBS. The Ribs articulate behind with the twelve Dorsal vertebræ
Angle of rib
Spines of DORSAL VERTEBRÆ
LUMBAR VERTEBRÆ (spinous processes)
Iliac crest
Re-entering angle of iliac crest
AA Sacro-iliac
B triangle
Posterior superior iliac spine
Tuberosity of Sacrum
PELVIS
B
Trochanter major
FEMUR
Tuberosity of Ischium

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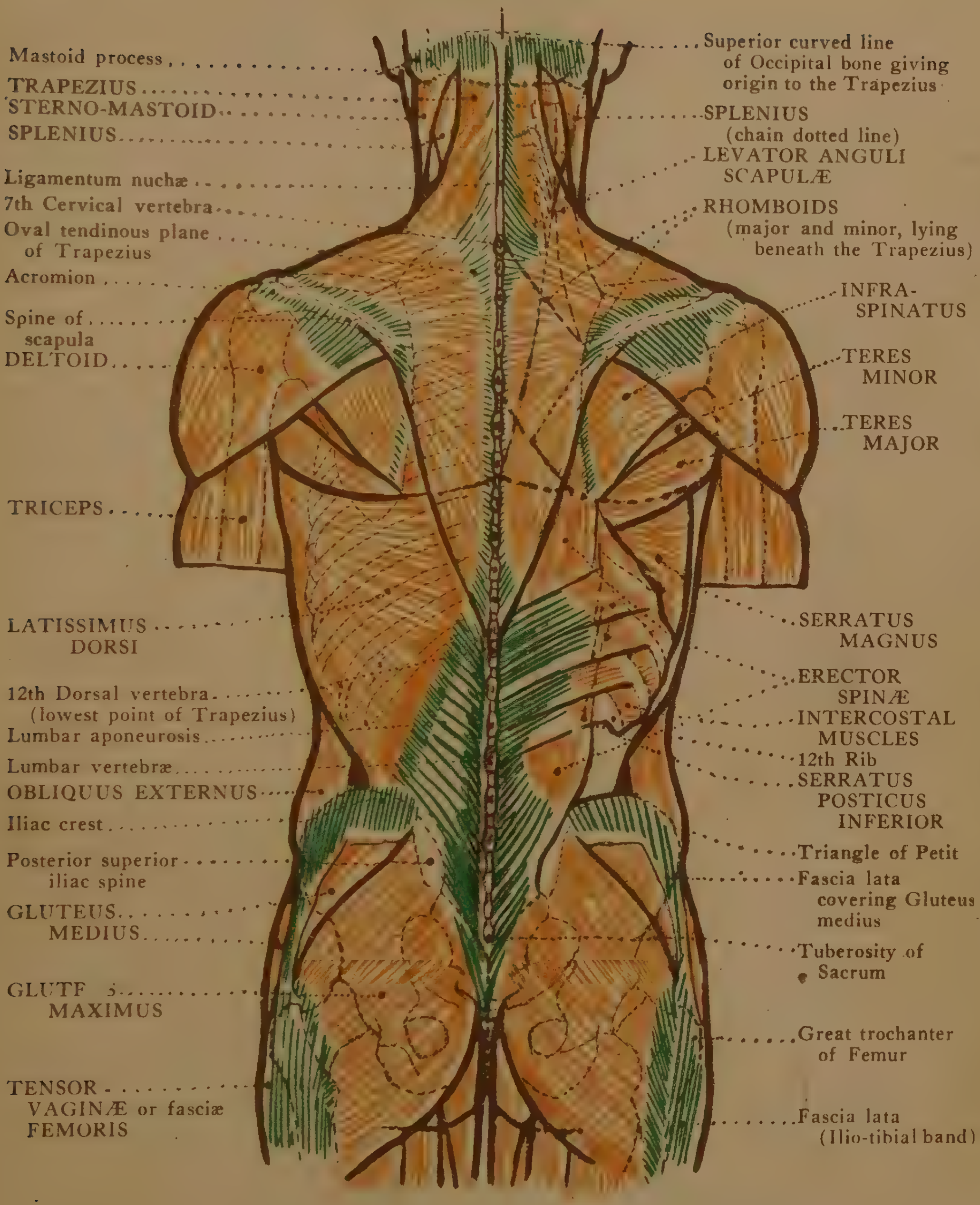
BACK VIEW OF THE TRUNK.


Mastoid process
TRAPEZIUS
STERNO-MASTOID
SPLENIUS
Ligamentum nuchæ
7th Cervical vertebra
Oval tendinous plane of Trapezius
Acromion
Spine of scapula
DELTOID
TRICEPS
LATISSIMUS DORSI
12th Dorsal vertebra (lowest point of Trapezius)
Lumbar aponeurosis
Lumbar vertebræ
OBLIQUUS EXTERNUS
Iliac crest
Posterior superior iliac spine
GLUTEUS MEDIUS
GLUTEUS MAXIMUS
TENSOR VAGINÆ or fasciæ FEMORIS
Superior curved line of Occipital bone giving origin to the Trapezius
SPLENIUS (chain dotted line)
LEVATOR ANGULI SCAPULÆ
RHOMBOIDS (major and minor, lying beneath the Trapezius)
INFRA-SPINATUS
TERES MINOR
TERES MAJOR
SERRATUS MAGNUS
ERECTOR SPINÆ
INTERCOSTAL MUSCLES
12th Rib
SERRATUS POSTICUS INFERIOR
Triangle of Petit
Fascia lata covering Gluteus medius
Tuberosity of Sacrum
Great trochanter of Femur
Fascia lata (Ilio-tibial band)

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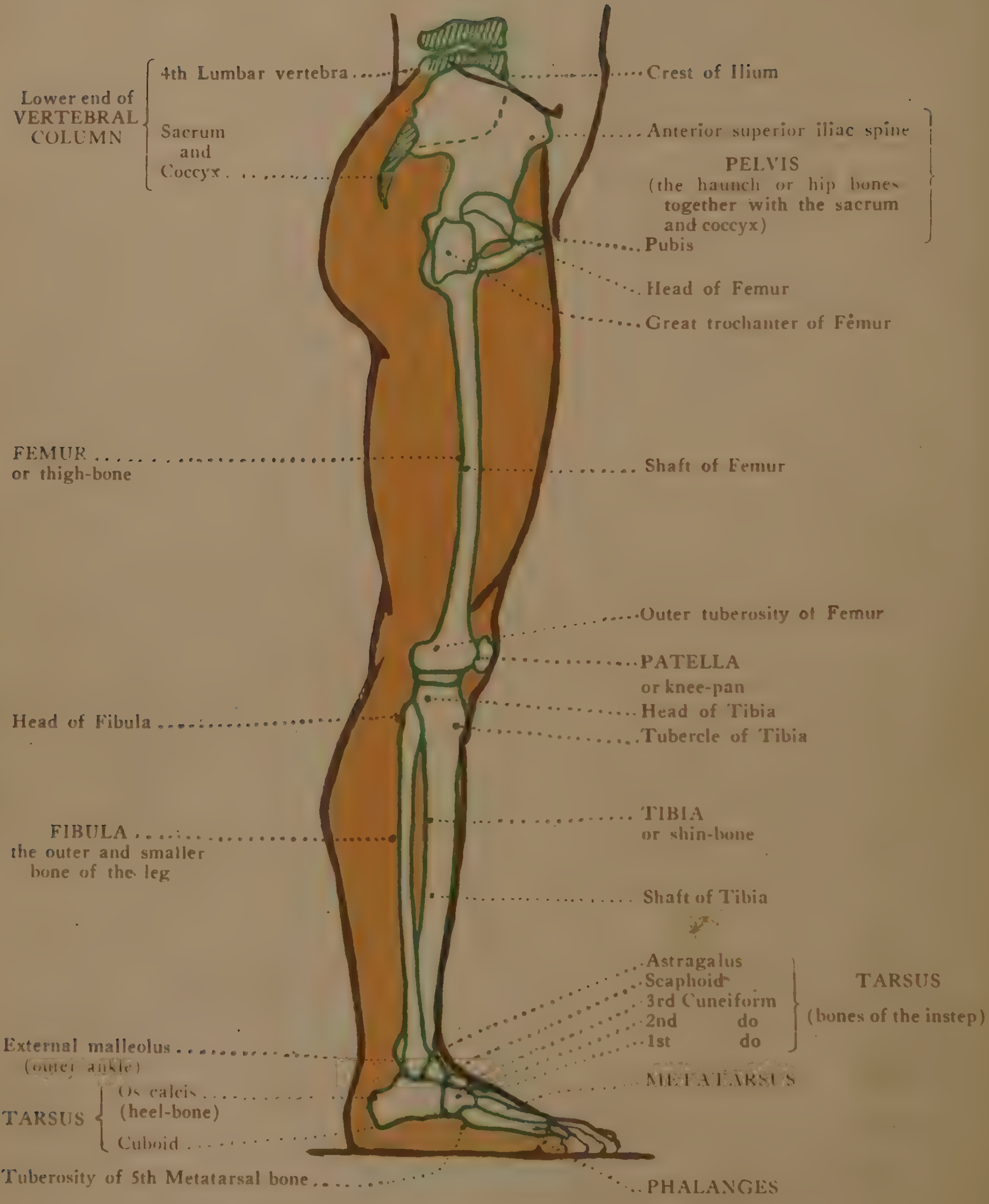
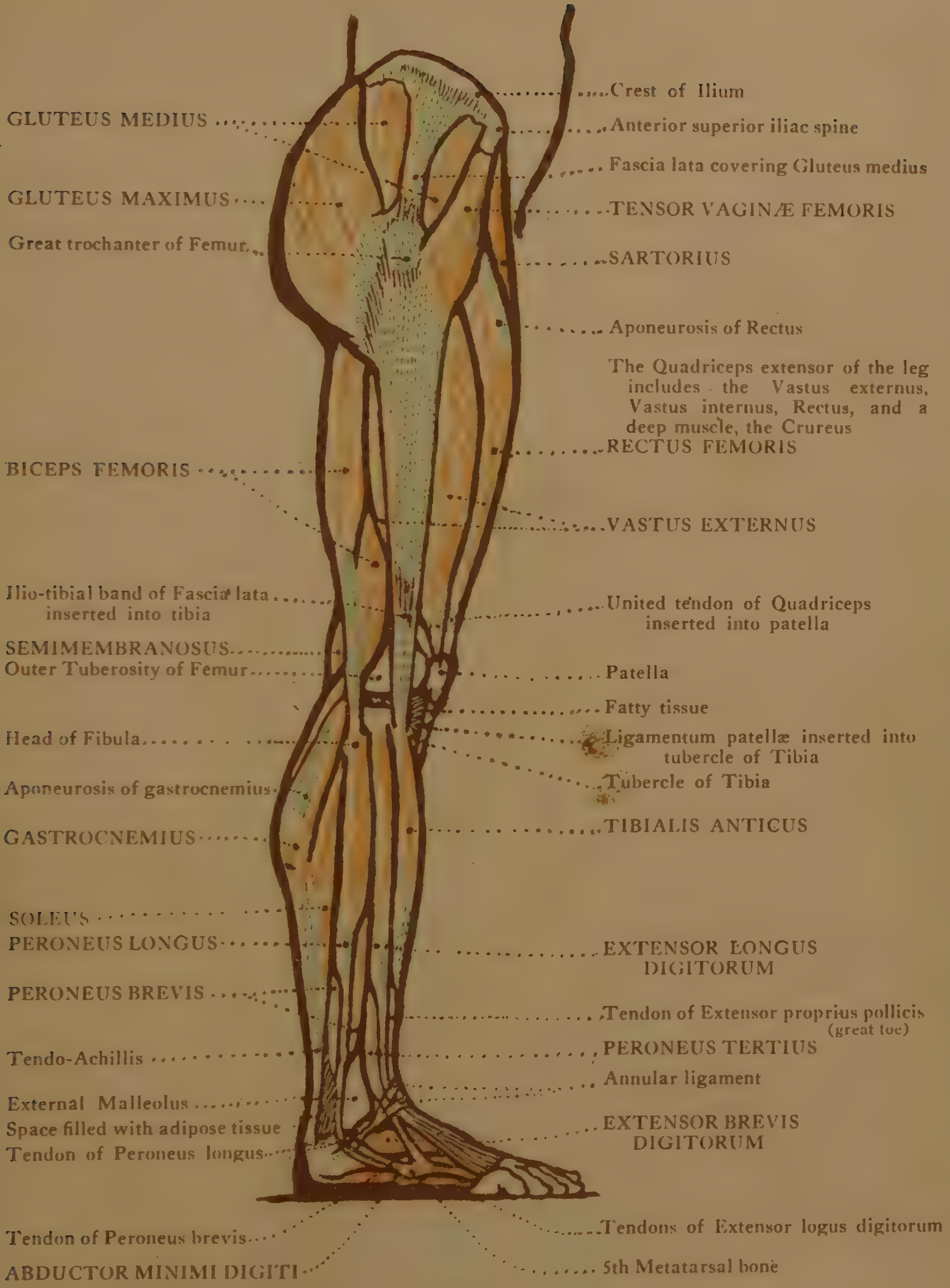
OUTER VIEW OF THE LOWER LIMB.


Lower end of VERTEBRAL COLUMN
4th Lumbar vertebra
Sacrum and Coccyx
Crest of Ilium
Anterior superior iliac spine
PELVIS (the haunch or hip bones together with the sacrum and coccyx)
Pubis
Head of Femur
Great trochanter of Femur
FEMUR or thigh-bone
Shaft of Femur
Outer tuberosity of Femur
PATELLA or knee-pan
Head of Fibula
Head of Tibia
Tubercle of Tibia
FIBULA the outer and smaller bone of the leg
TIBIA or shin-bone
Shaft of Tibia
Astragalus
Scaphoid
3rd Cuneiform
2nd do
1st do
TARSUS (bones of the instep)
External malleolus (outer ankle)
METATARSUS
TARSUS
Os calcis (heel-bone)
Cuboid
Tuberosity of 5th Metatarsal bone
PHALANGES

OUTER VIEW OF THE LOWER LIMB.


GLUTEUS MEDIUS
GLUTEUS MAXIMUS
Great trochanter of Femur
BICEPS FEMORIS
Ilio-tibial band of Fascia lata inserted into tibia
SEMIMEMBRANOSUS
Outer Tuberosity of Femur
Head of Fibula
Aponeurosis of gastrocnemius
GASTROCNEMIUS
SOLEUS
PERONEUS LONGUS
PERONEUS BREVIS
Tendo-Achillis
External Malleolus
Space filled with adipose tissue
Tendon of Peroneus longus
Tendon of Peroneus brevis
ABDUCTOR MINIMI DIGITI
Crest of Ilium
Anterior superior iliac spine
Fascia lata covering Gluteus medius
TENSOR VAGINÆ FEMORIS
SARTORIUS
Aponeurosis of Rectus
RECTUS FEMORIS
VASTUS EXTERNUS
United tendon of Quadriceps inserted into patella
Patella
Fatty tissue
Ligamentum patellæ inserted into tubercle of Tibia
Tubercle of Tibia
TIBIALIS ANTICUS
EXTENSOR LONGUS DIGITORUM
Tendon of Extensor proprius pollicis (great toe)
PERONEUS TERTIUS
Annular ligament
EXTENSOR BREVIS DIGITORUM
Tendons of Extensor logus digitorum
5th Metatarsal bone

The Quadriceps extensor of the leg includes the Vastus externus, Vastus internus, Rectus, and a deep muscle, the Crureus

Note.—The special thickening of the outline refers to subcutaneous fatty tissue

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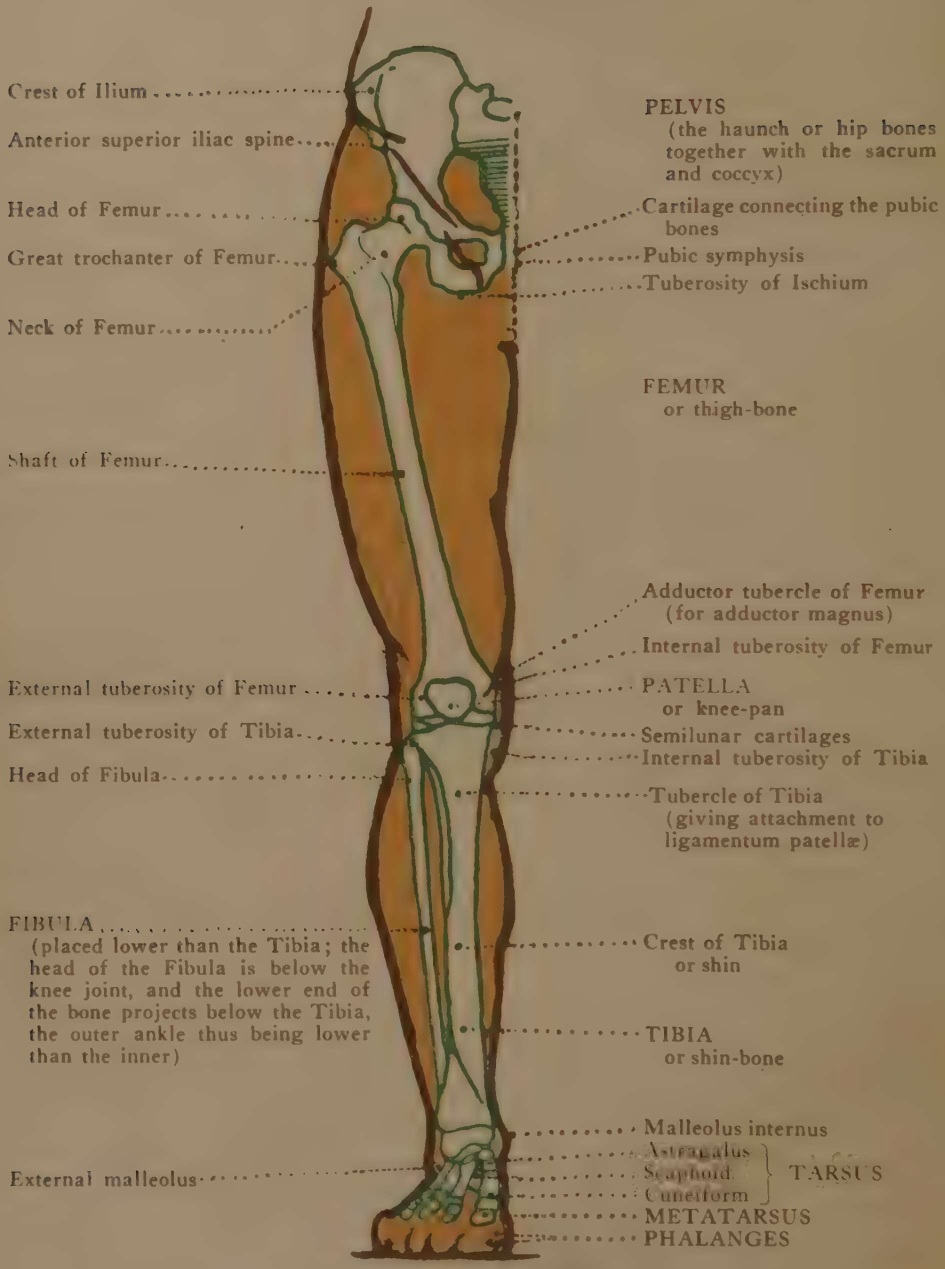
FRONT VIEW OF THE LOWER LIMB.


Crest of Ilium
Anterior superior iliac spine
Head of Femur
Great trochanter of Femur
Neck of Femur
Shaft of Femur
External tuberosity of Femur
External tuberosity of Tibia
Head of Fibula
FIBULA
(placed lower than the Tibia; the head of the Fibula is below the knee joint, and the lower end of the bone projects below the Tibia, the outer ankle thus being lower than the inner)
External malleolus
PELVIS
(the haunch or hip bones together with the sacrum and coccyx)
Cartilage connecting the pubic bones
Pubic symphysis
Tuberosity of Ischium
FEMUR
or thigh-bone
Adductor tubercle of Femur
(for adductor magnus)
Internal tuberosity of Femur
PATELLA
or knee-pan
Semilunar cartilages
Internal tuberosity of Tibia
Tubercle of Tibia
(giving attachment to ligamentum patellæ)
Crest of Tibia
or shin
TIBIA
or shin-bone
Malleolus internus
Astragalus
Scaphoid
Cuneiform
TARSUS
METATARSUS
PHALANGES

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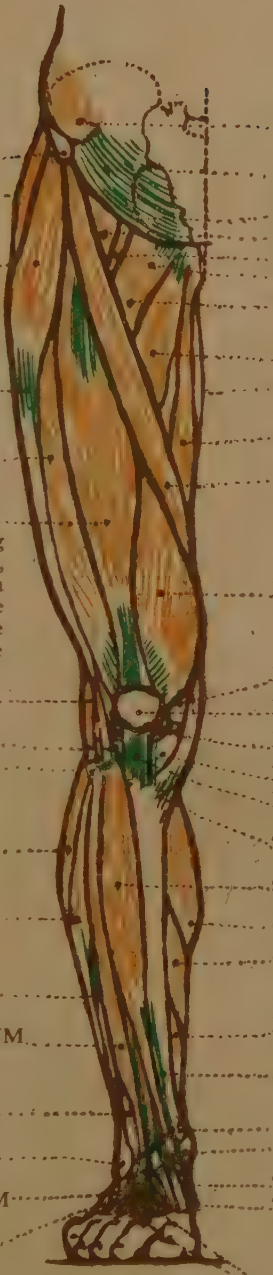
FRONT VIEW OF THE LOWER LIMB.

MUSCLES.



The Quadriceps extensor of the leg includes the Vastus externus, Vastus internus, Rectus, and a deep muscle, the Crureus: the united tendon is attached to the Patella and is continued to the Tibia

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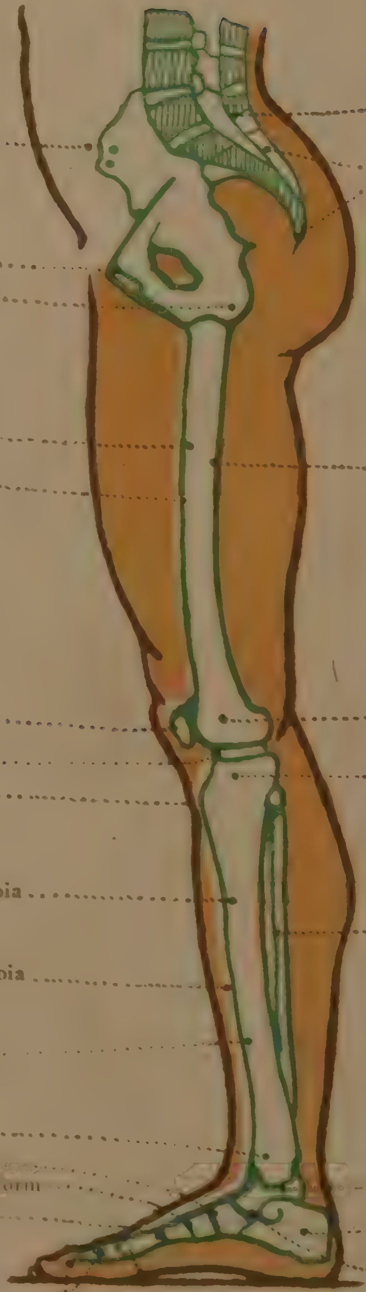
INNER VIEW OF THE LOWER LIMB.


Anterior superior iliac spine
PELVIS
Pubic symphysis
Tuberosity of ischium
FEMUR or thigh bone
Shaft of Femur
PATELLA or Knee-pan
Semilunar cartilage
Tubercle of Tibia
Internal surface of Tibia (subcutaneous)
Anterior border of Tibia the Crest, or shin
TIBIA or shin-bone
Malleolus internus
TARSUS { Scaphoid
1st Cuneiform
1st Metatarsal
PHALANGES
Spinous process of 5th Lumbar vertebra
Sacrum and Coccyx
Lower end of VERTEBRAL COLUMN (in section)
Linea aspera, or rough line on posterior aspect of Femur giving attachment to Vastus internus, Vastus externus, and other muscles
Internal tuberosity of Femur
Internal tuberosity of Tibia
FIBULA
Astragalus
Os calcis
TARSUS
Sustentaculum tali, a projection of the Os calcis giving support to the Astragalus

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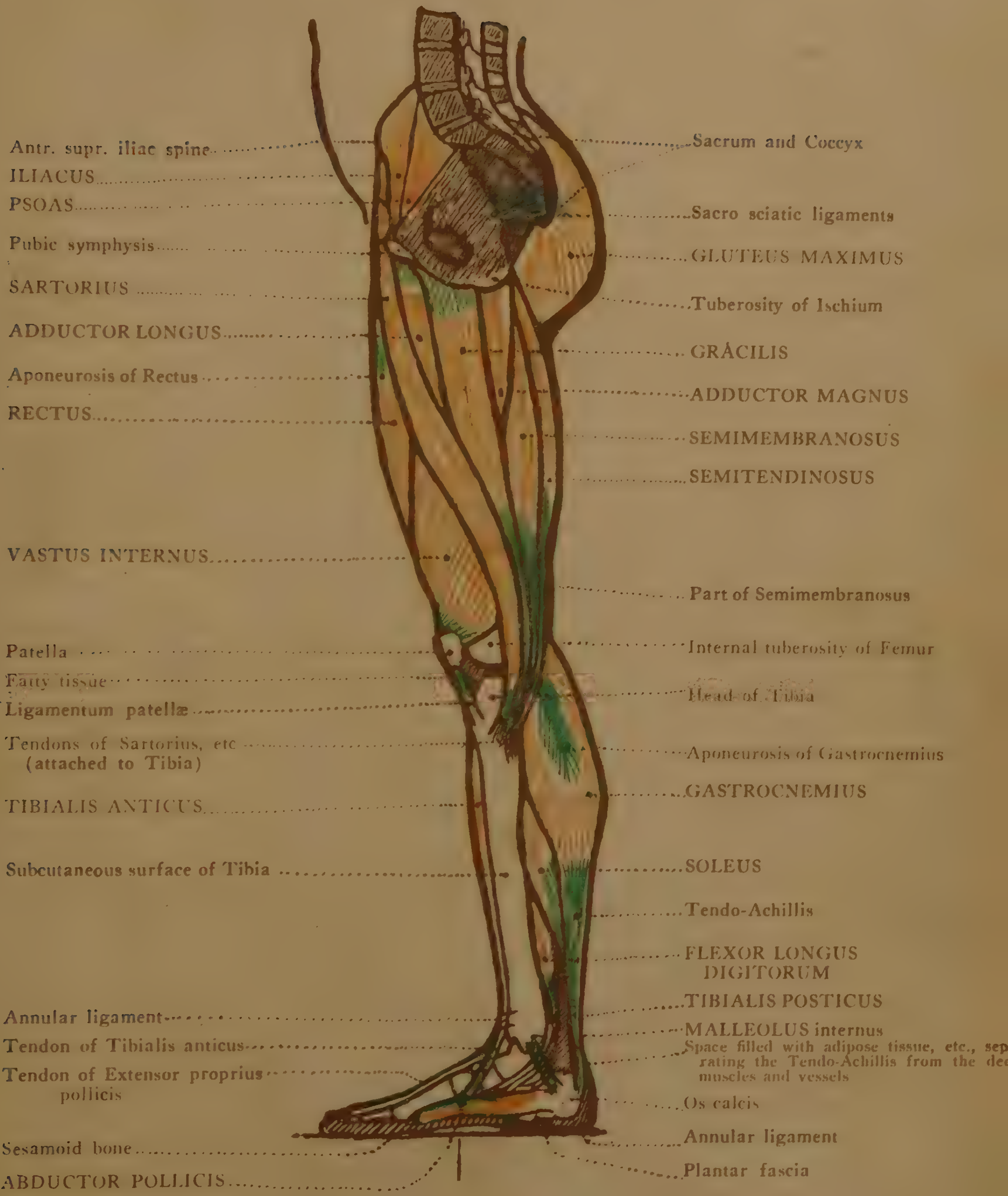
INNER VIEW OF THE LOWER LIMB.



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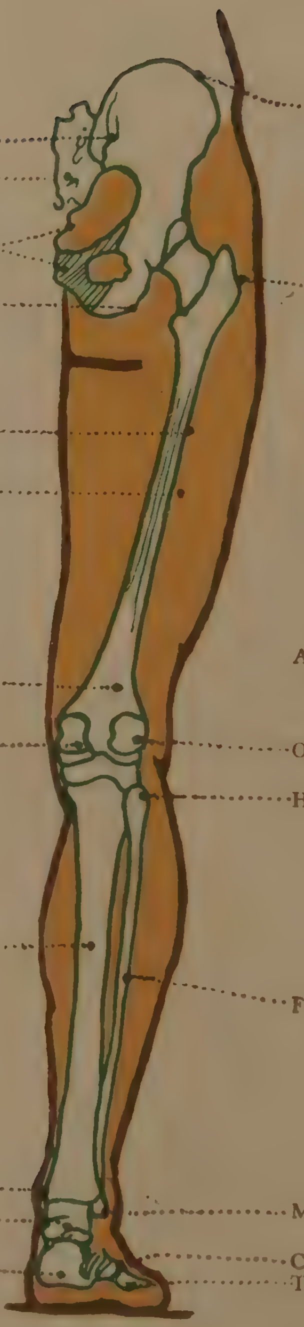
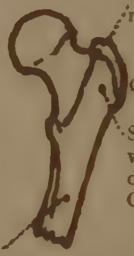
BACK VIEW OF THE LOWER LIMB.


Posterior superior iliac spine
Tuberosity of Sacrum
PELVIS
Coccyx
Tuberosity of Ischium
FEMUR
Linea aspera, or rough line giving attachment to various muscles
Popliteal space, containing popliteal artery, nerve, etc.
Inner Condyle of Femur
TIBIA, or shin-bone
Malleolus internus
TARSUS
Astragalus
Os calcis
Crest of Ilium
Great trochanter of Femur
Outer condyle of Femur
Head of Fibula
FIBULA, the outer and smaller bone of the leg
Malleolus externus
Cuboid
Tuberosity of 5th Metatarsal


Attachment of Gluteus medius tendon
Great trochanter
Smooth surface over which plays the tendon of upper part of Gluteus maximus
Attachment of lower part of Gluteus maximus

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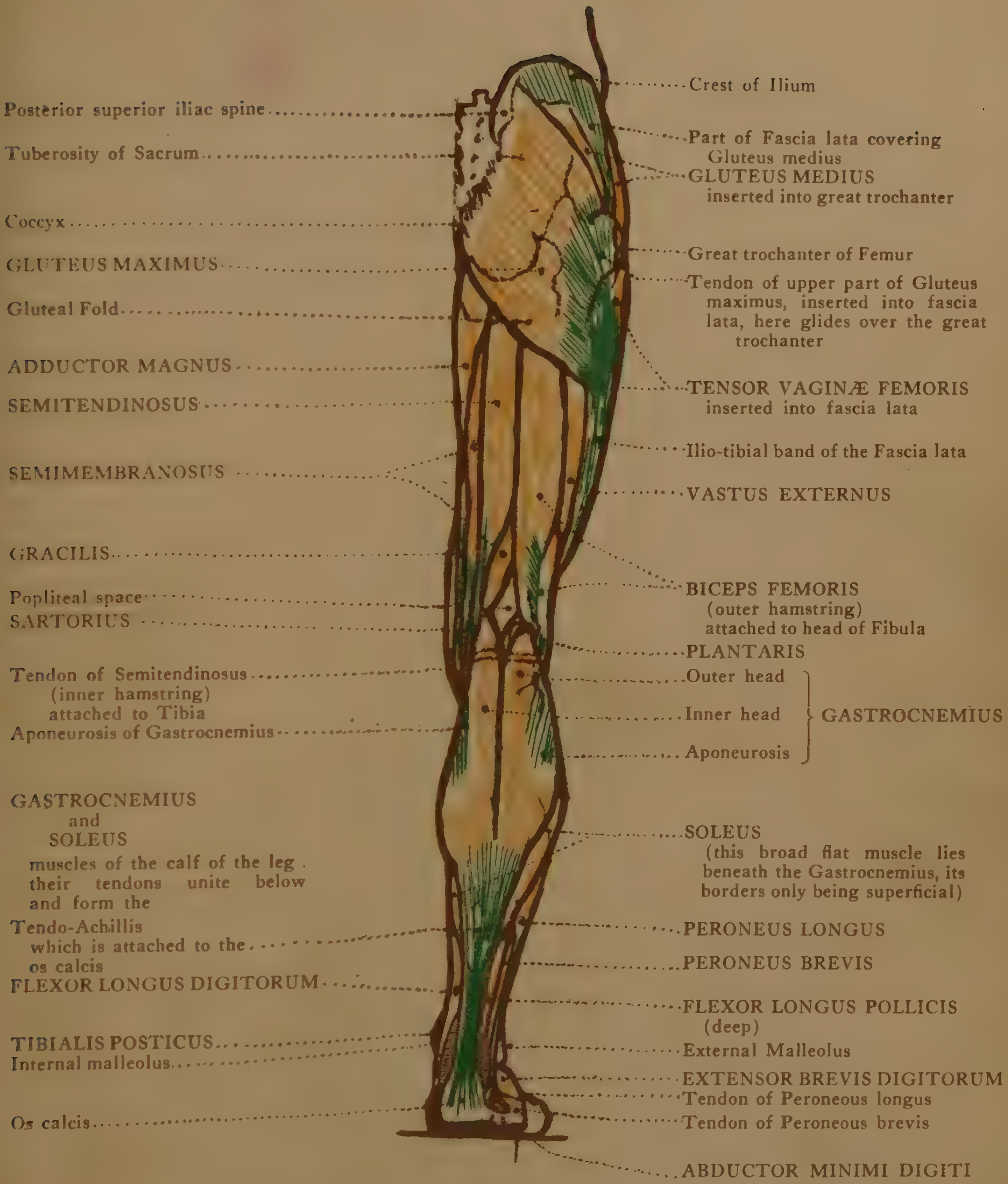
BACK VIEW OF THE LOWER LIMB.

MUSCLES.


Posterior superior iliac spine
Tuberosity of Sacrum
Coccyx
GLUTEUS MAXIMUS
Gluteal Fold
ADDUCTOR MAGNUS
SEMITENDINOSUS
SEMIMEMBRANOSUS
GRACILIS
Popliteal space
SARTORIUS
Tendon of Semitendinosus (inner hamstring) attached to Tibia
Aponeurosis of Gastrocnemius
GASTROCNEMIUS and SOLEUS muscles of the calf of the leg . their tendons unite below and form the Tendo-Achillis which is attached to the os calcis
FLEXOR LONGUS DIGITORUM
TIBIALIS POSTICUS
Internal malleolus
Os calcis
Crest of Ilium
Part of Fascia lata covering Gluteus medius
GLUTEUS MEDIUS inserted into great trochanter
Great trochanter of Femur
Tendon of upper part of Gluteus maximus, inserted into fascia lata, here glides over the great trochanter
TENSOR VAGINÆ FEMORIS inserted into fascia lata
Ilio-tibial band of the Fascia lata
VASTUS EXTERNUS
BICEPS FEMORIS (outer hamstring) attached to head of Fibula
PLANTARIS
Outer head
Inner head
Aponeurosis
GASTROCNEMIUS
SOLEUS (this broad flat muscle lies beneath the Gastrocnemius, its borders only being superficial)
PERONEUS LONGUS
PERONEUS BREVIS
FLEXOR LONGUS POLLICIS (deep)
External Malleolus
EXTENSOR BREVIS DIGITORUM
Tendon of Peroneous longus
Tendon of Peroneous brevis
ABDUCTOR MINIMI DIGITI

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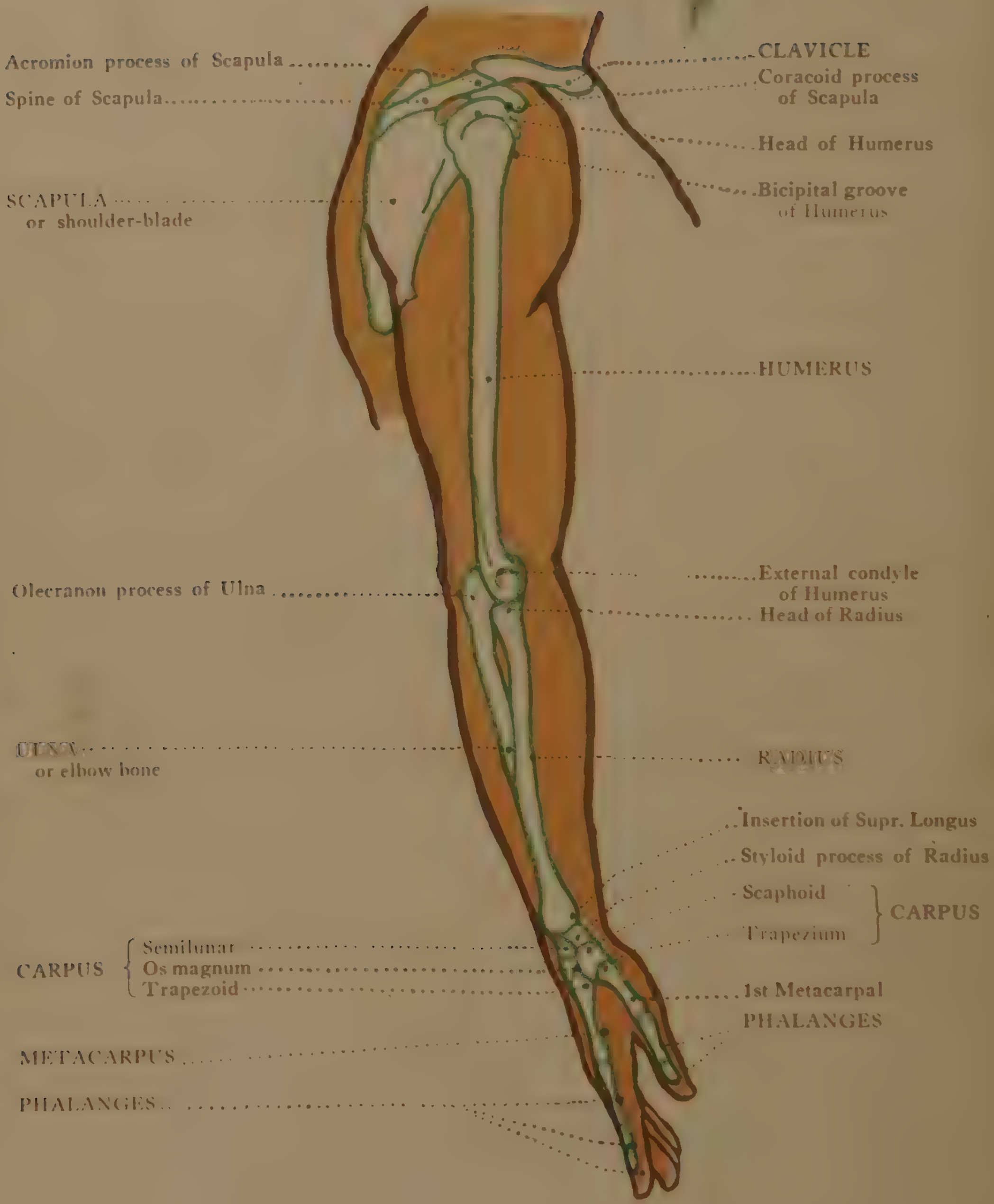
OUTER VIEW OF THE UPPER LIMB.


Acromion process of Scapula
Spine of Scapula
SCAPULA or shoulder-blade
CLAVICLE
Coracoid process of Scapula
Head of Humerus
Bicipital groove of Humerus
HUMERUS
Olecranon process of Ulna
External condyle of Humerus
Head of Radius
ULNA or elbow bone
RADIUS
Insertion of Supr. Longus
Styloid process of Radius
Scaphoid
Trapezium
CARPUS
CARPUS
Semilunar
Os magnum
Trapezoid
1st Metacarpal
PHALANGES
METACARPUS
PHALANGES

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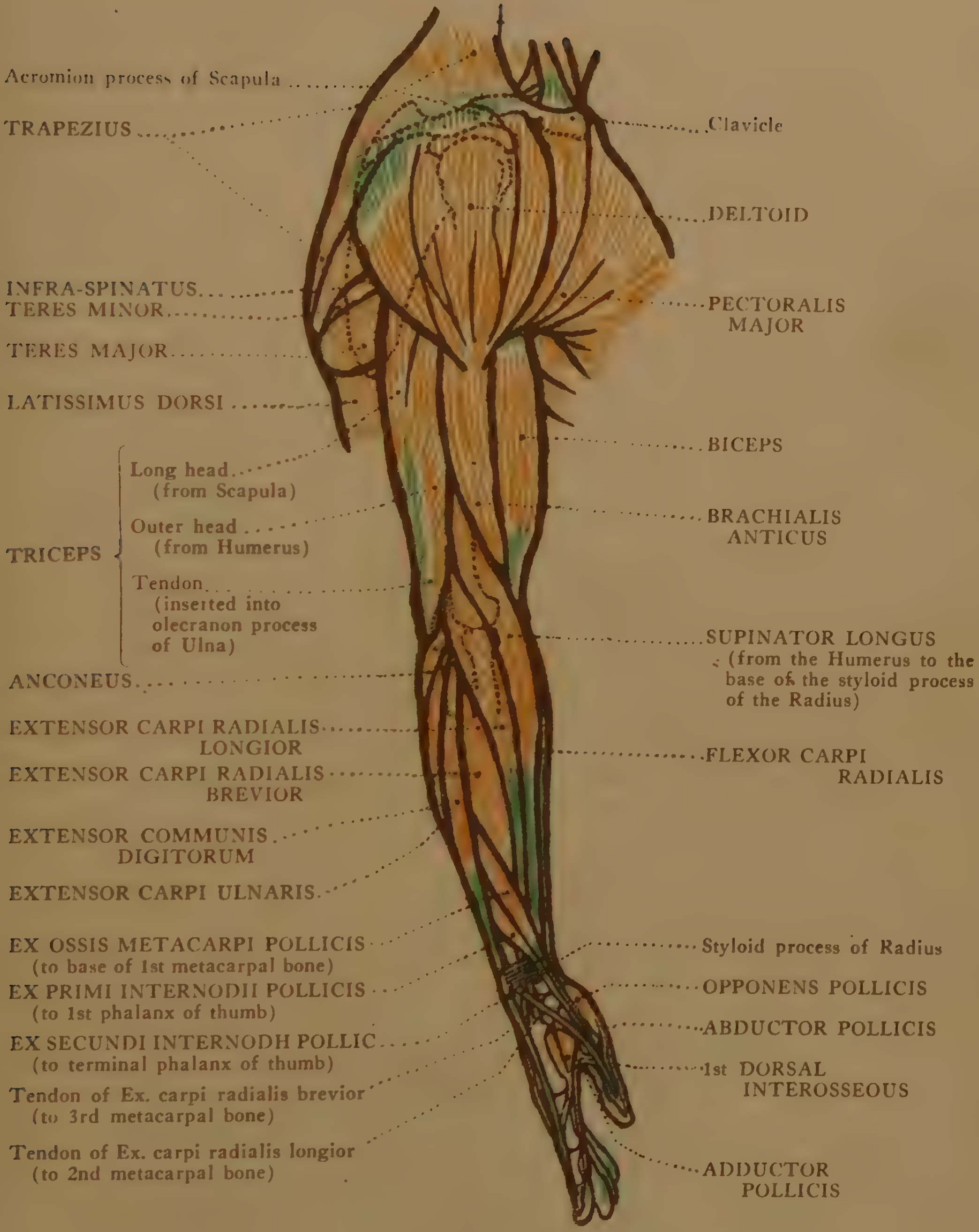
OUTER VIEW OF THE UPPER LIMB.


Acromion process of Scapula
TRAPEZIUS
INFRA-SPINATUS
TERES MINOR
TERES MAJOR
LATISSIMUS DORSI
TRICEPS
Long head (from Scapula)
Outer head (from Humerus)
Tendon (inserted into olecranon process of Ulna)
ANCONEUS
EXTENSOR CARPI RADIALIS LONGIOR
EXTENSOR CARPI RADIALIS BREVIOR
EXTENSOR COMMUNIS DIGITORUM
EXTENSOR CARPI ULNARIS
EX OSSIS METACARPI POLLICIS (to base of 1st metacarpal bone)
EX PRIMI INTERNODII POLLICIS (to 1st phalanx of thumb)
EX SECUNDI INTERNODII POLLIC (to terminal phalanx of thumb)
Tendon of Ex. carpi radialis brevior (to 3rd metacarpal bone)
Tendon of Ex. carpi radialis longior (to 2nd metacarpal bone)
Clavicle
DELTOID
PECTORALIS MAJOR
BICEPS
BRACHIALIS ANTICUS
SUPINATOR LONGUS (from the Humerus to the base of the styloid process of the Radius)
FLEXOR CARPI RADIALIS
Styloid process of Radius
OPPONENS POLLICIS
ABDUCTOR POLLICIS
1st DORSAL INTEROSSEOUS
ADDUCTOR POLLICIS

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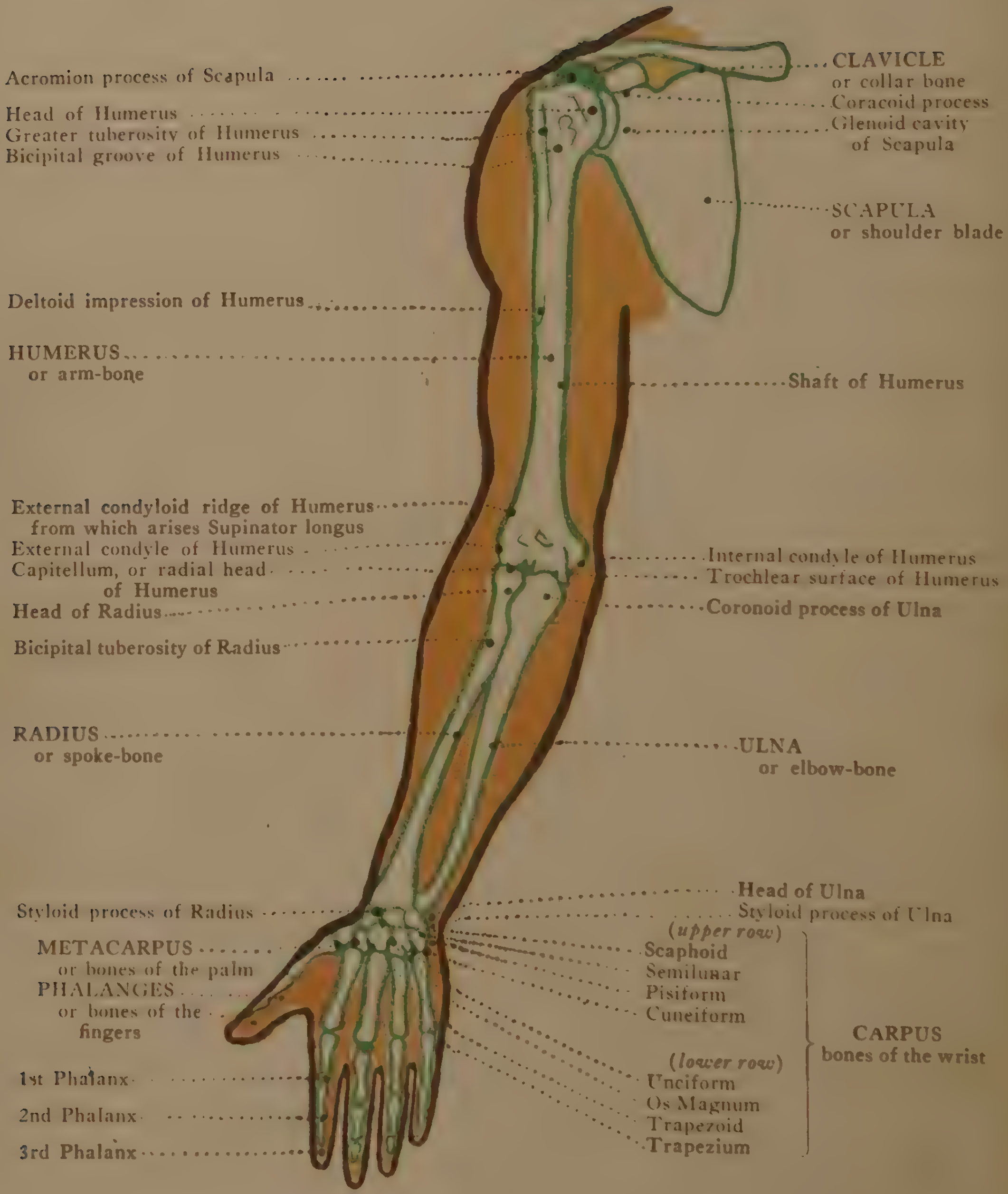
FRONT VIEW OF THE UPPER LIMB.



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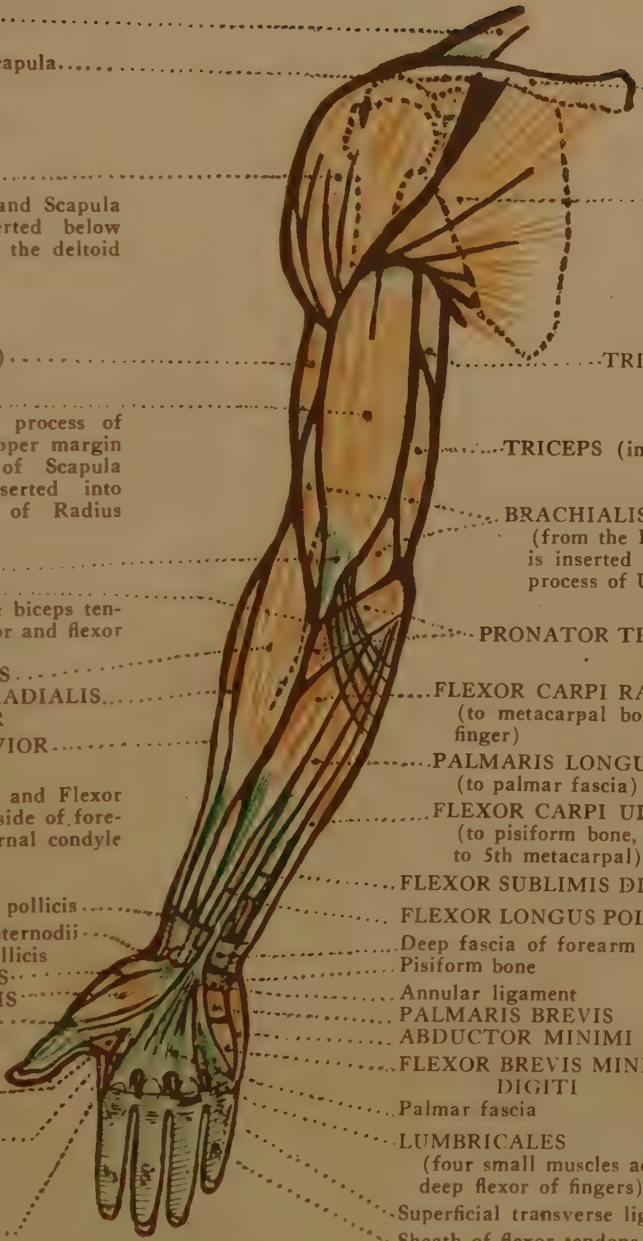
FRONT VIEW OF THE UPPER LIMB.

MUSCLES.


TRAPEZIUS
Acromion process of Scapula
DELTOID (from the Clavicle and Scapula above, and is inserted below into the Humerus at the deltoid impression)
TRICEPS (outer head)
BICEPS (from the Coracoid process of Scapula and from upper margin of glenoid cavity of Scapula above, and is inserted into bicipital tuberosity of Radius below)
Tendon of Biceps
Bicipital fascia (an expansion of the biceps tendon covering pronator and flexor muscles)
SUPINATOR LONGUS
EXTENSOR CARPI RADIALIS LONGIOR
EX. CAR. RAD. BREVIOR
Tendon of Ex. os. met. pollicis
Tendon of Ex. primi internodii pollicis
OPPONENS POLLICIS
ABDUCTOR POLLICIS
FLEXOR BREVIS POLLICIS
ADDUCTOR POLLICIS
ABDUCTOR INDICIS (or 1st Dorsal interosseous)
LUMBRICALES
Clavicle
Part of PECTORALIS MAJOR
TRICEPS (long head)
TRICEPS (inner head)
BRACHIALIS ANTICUS (from the Humerus above, and is inserted below into coronoid process of Ulna)
PRONATOR TERES
FLEXOR CARPI RADIALIS (to metacarpal bone of index finger)
PALMARIS LONGUS (to palmar fascia)
FLEXOR CARPI ULNARIS (to pisiform bone, and is prolonged to 5th metacarpal)
FLEXOR SUBLIMIS DIGITORUM
FLEXOR LONGUS POLLICIS
Deep fascia of forearm
Pisiform bone
Annular ligament
PALMARIS BREVIS
ABDUCTOR MINIMI DIGITI
FLEXOR BREVIS MINIMI DIGITI
Palmar fascia
LUMBRICALES (four small muscles accessory to the deep flexor of fingers)
Superficial transverse ligament
Sheath of flexor tendons

Note.—The Pronator and Flexor Group, on the inner side of fore-arm arise from internal condyle of Humerus.

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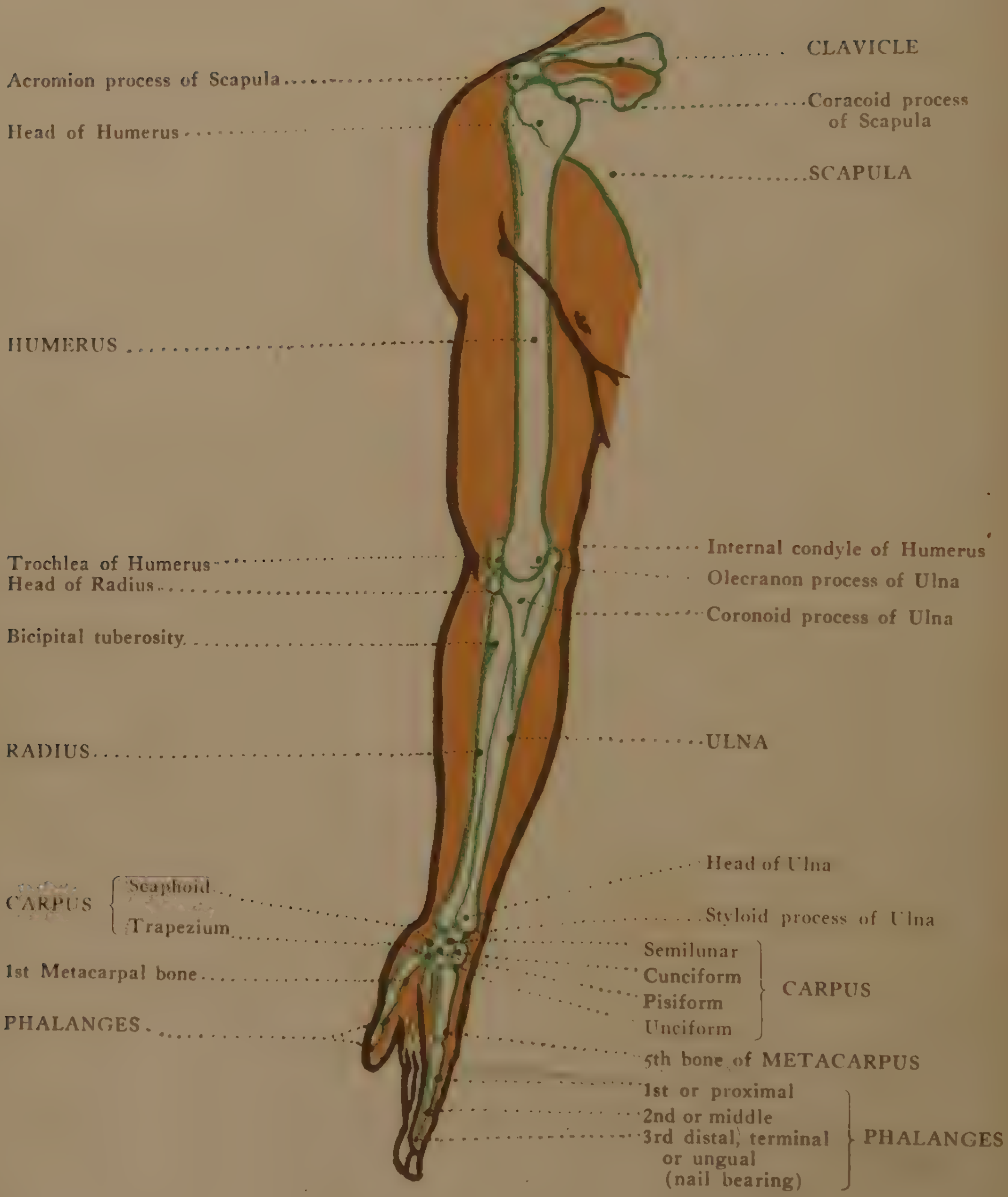
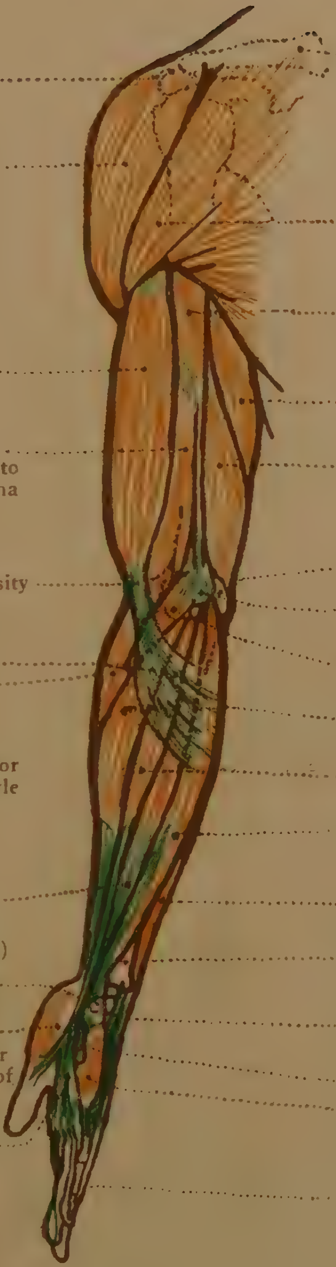
INNER VIEW OF THE UPPER LIMB.



INNER VIEW OF THE UPPER LIMB.

MUSCLES.


Acromion process of Scapula
DELTOID
BICEPS
BRACHIALIS ANTICUS (from the Humerus above to the coronoid process of the Ulna below)
Biceps tendon (inserted into bicipital tuberosity of the Radius)
Bicipital fascia
SUPINATOR LONGUS
FLEXOR SUBLIMIS DIGITORUM (sends 4 tendons to the fingers)
Pisiform bone
ABDUCTOR POLLICIS (from Trapezium and annular ligament to 1st phalanx of thumb)
Palmar fascia
Clavicle
PECTORALIS MAJOR
CORACO BRACUIALIS (from coracoid process of the Scapula above, to the Humerus)
TRICEPS (long head)
TRICEPS (inner head) (the tendon of Triceps is inserted into the olecranon process of Ulna)
Olecranon process of Ulna
Internal condyle of Humerus
PRONATOR TERES (inserted into the Radius)
FLEXOR CARPI RADIALIS (to metacarpal bone of index finger)
PALMARIS LONGUS (to the palmar fascia)
FLEXOR CARPI ULNARIS (to pisiform bone, and is prolonged to 5th metacarpal)
EXTENSOR CARPI ULNARIS (to 5th metacarpal bone)
Head of Ulna
Tendon of Ex. carpi ulnaris (attached to 5th metacarpal)
PALMARIS BREVIS
ABDUCTOR MINIMI DIGITI (from pisiform bone to 1st phalanx of little finger)
Tendon of Ex. minimi digiti

Note.—The Pronator and Flexor Group arise from internal condyle of Humerus

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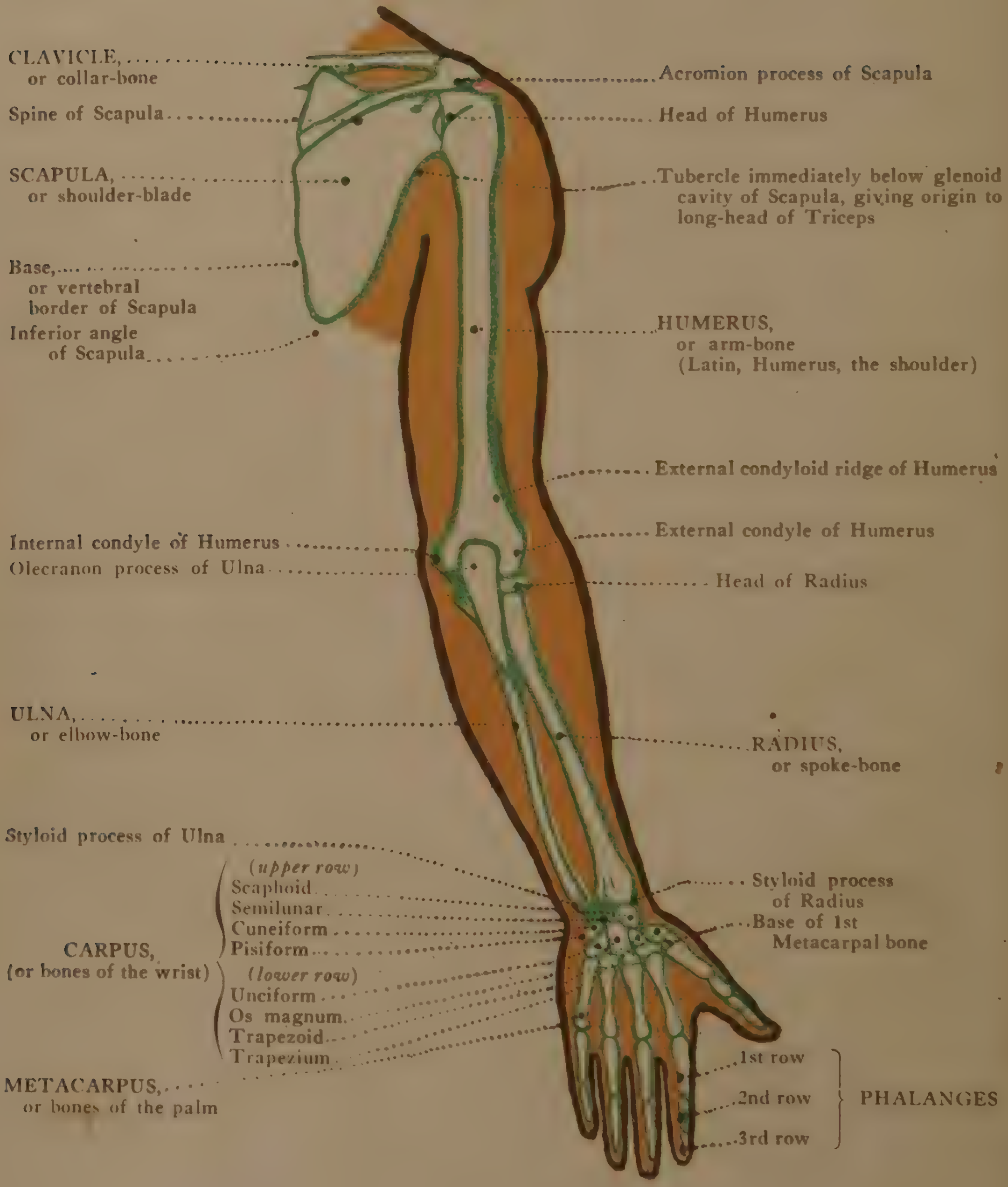
BACK VIEW OF THE UPPER LIMB.



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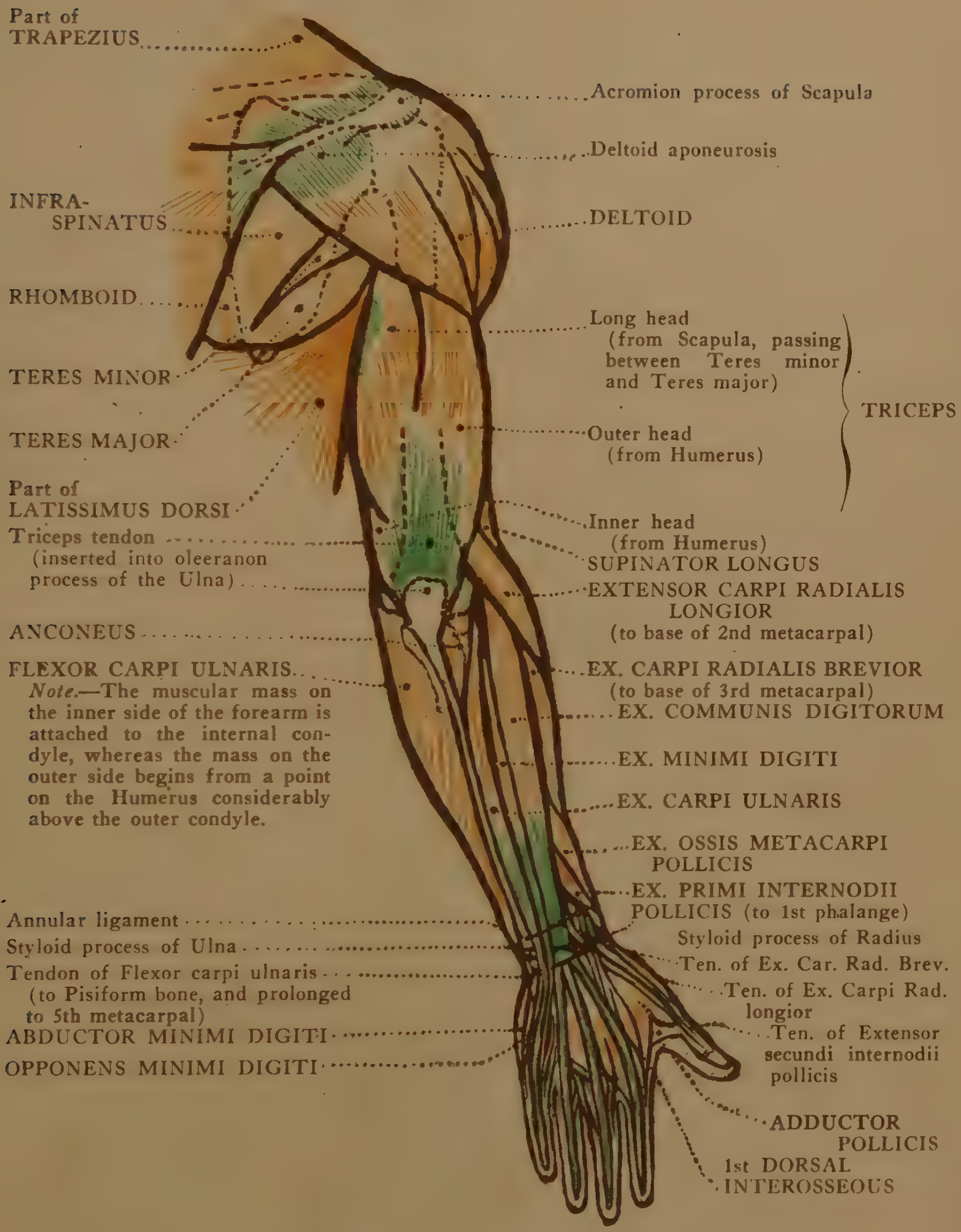
BACK VIEW OF THE UPPER LIMB.


Part of TRAPEZIUS
INFRA-SPINATUS
RHOMBOID
TERES MINOR
TERES MAJOR
Part of LATISSIMUS DORSI
Triceps tendon (inserted into oleeranon process of the Ulna)
ANCONEUS
FLEXOR CARPI ULNARIS
Annular ligament
Styloid process of Ulna
Tendon of Flexor carpi ulnaris (to Pisiform bone, and prolonged to 5th metacarpal)
ABDUCTOR MINIMI DIGITI
OPPONENS MINIMI DIGITI
Acromion process of Scapula
Deltoid aponeurosis
DELTOID
Long head (from Scapula, passing between Teres minor and Teres major)
Outer head (from Humerus)
TRICEPS
Inner head (from Humerus)
SUPINATOR LONGUS
EXTENSOR CARPI RADIALIS LONGIOR (to base of 2nd metacarpal)
EX. CARPI RADIALIS BREVIOR (to base of 3rd metacarpal)
EX. COMMUNIS DIGITORUM
EX. MINIMI DIGITI
EX. CARPI ULNARIS
EX. OSSIS METACARPI POLLICIS
EX. PRIMI INTERNODII POLLICIS (to 1st phalange)
Styloid process of Radius
Ten. of Ex. Car. Rad. Brev.
Ten. of Ex. Carpi Rad. longior
Ten. of Extensor secundi internodii pollicis
ADDUCTOR POLLICIS
1st DORSAL INTEROSSEOUS

Note.—The muscular mass on the inner side of the forearm is attached to the internal condyle, whereas the mass on the the outer side begins from a point on the Humerus considerably above the outer condyle.

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THE BONES IN RELATION TO THE OUTLINE OF FIGURE FRONT VIEW.

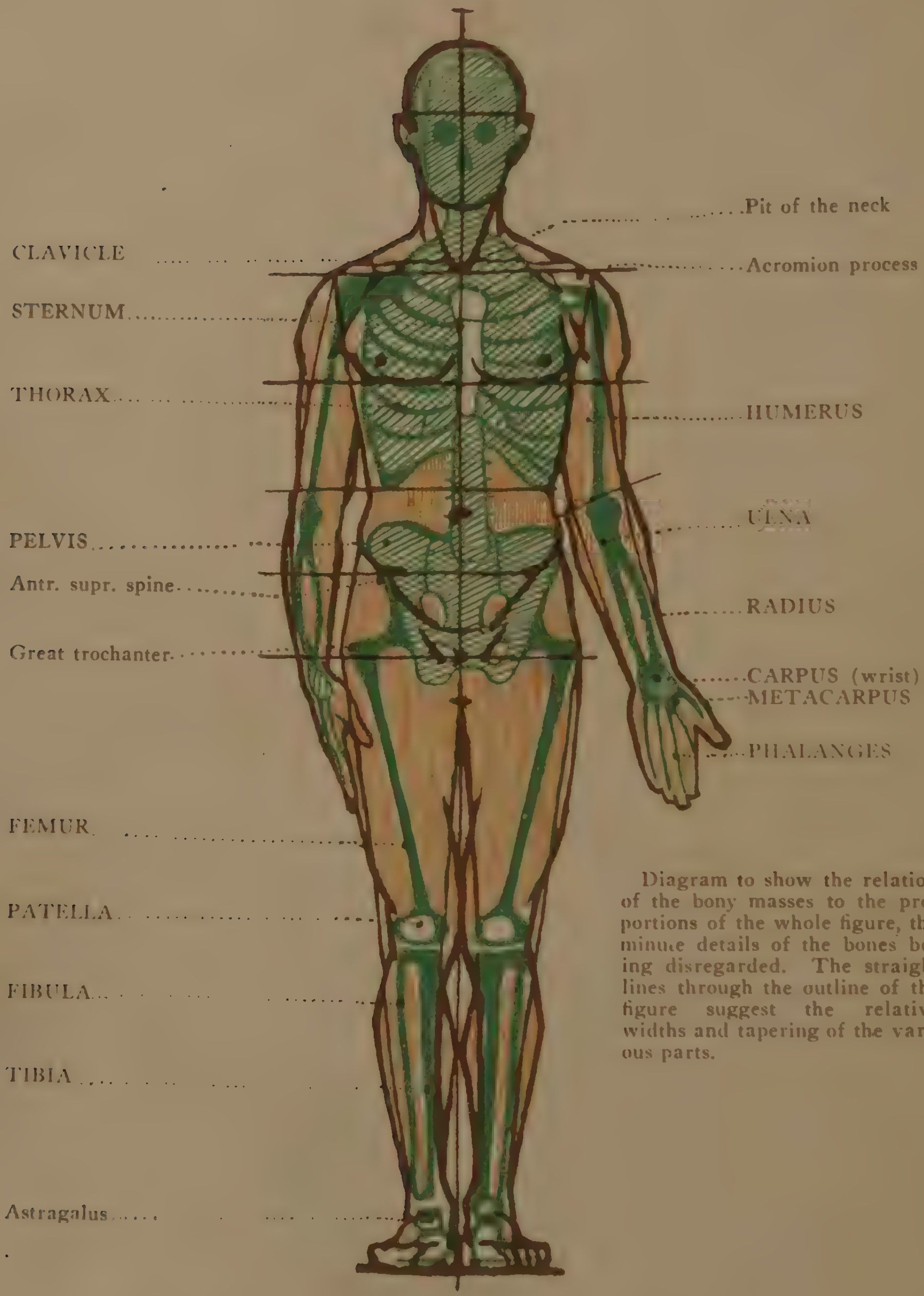

Diagram to show the relation of the bony masses to the proportions of the whole figure, the minute details of the bones being disregarded. The straight lines through the outline of the figure suggest the relative widths and tapering of the various parts.

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CONSTRUCTION LINES OF THE STANDING FIGURE
FRONT VIEW.

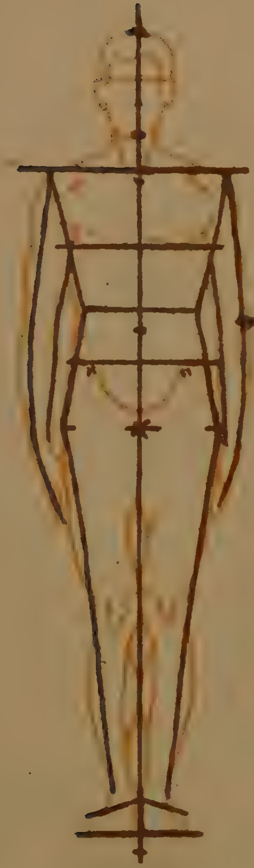


Fig. 1

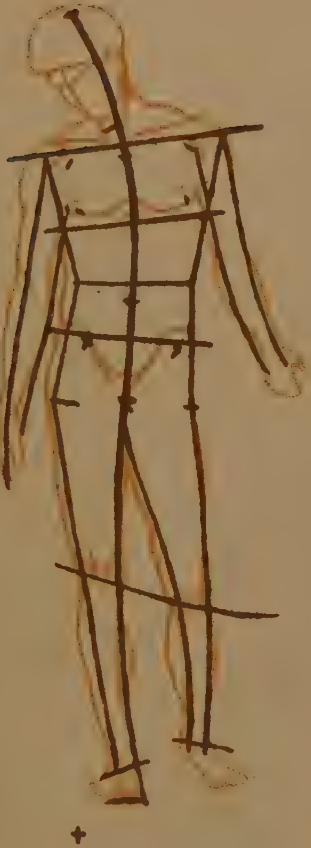


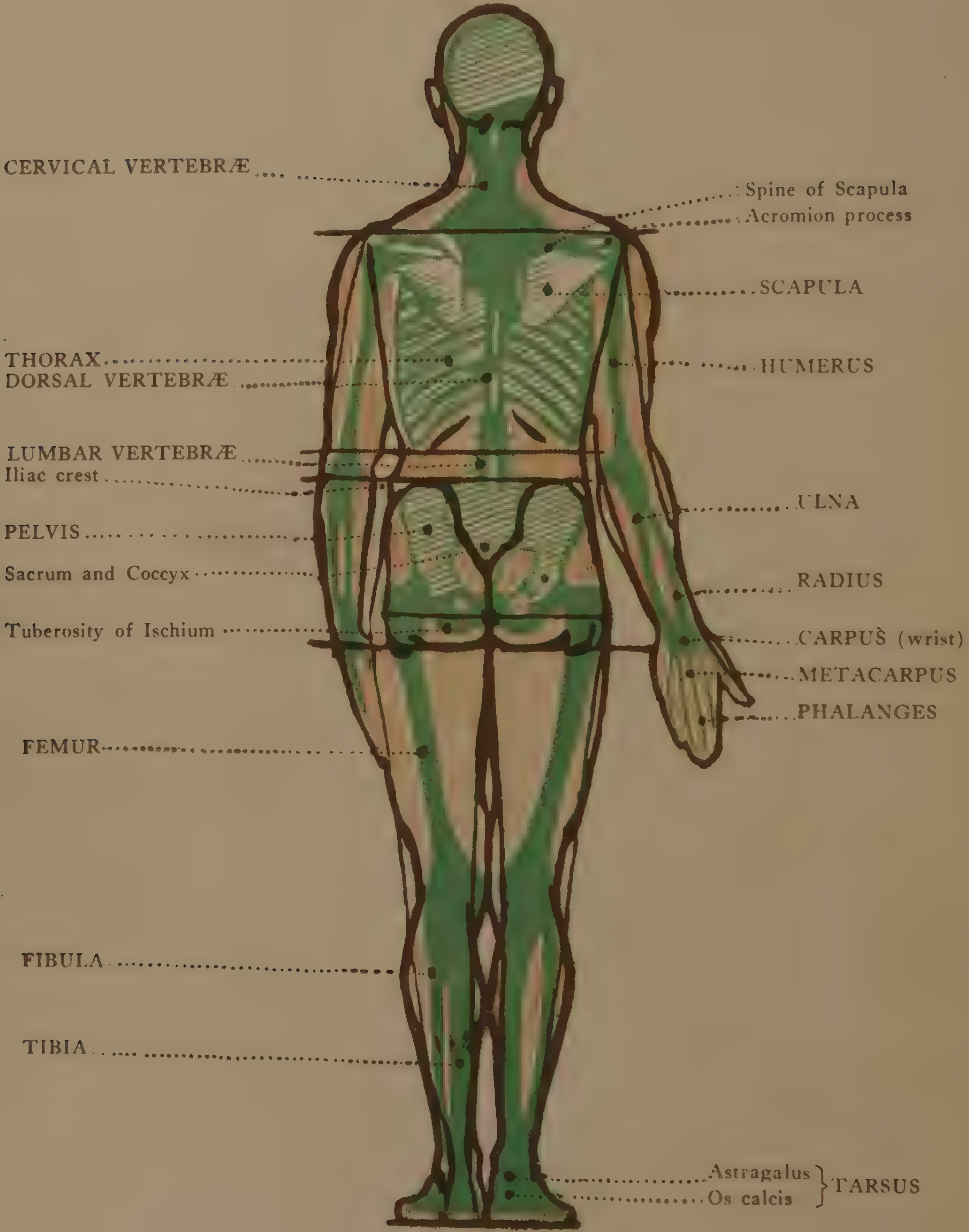
Fig. 2

In the above diagrams, Fig. 1 shows the leading constructive lines when the figure is standing upright and resting on both legs. In this position the line passing through the shoulders, and that drawn across the antr. supr. spines of the Pelvis, are both obviously at right angles to the vertical axis of the body.

In Figure 2 the weight of the body is carried mainly on one leg, and in this position the axial line of the body becomes a curve, but still the line drawn through the shoulders and that through the Pelvis may be regarded as at right angles to this imaginary curve. Observe that the Pelvis is higher on the side which supports the figure, and also that the hip makes a sharper angle on that side, and further, note the slope of the standing leg with the ground, necessary for the balance of the figure.

The axial line of the body carried down through the standing leg gives here a line of double curvature, which is the first line to be drawn in suggesting the pose.

THE BONES IN RELATION TO OUTLINE OF FIGURE.
BACK VIEW.



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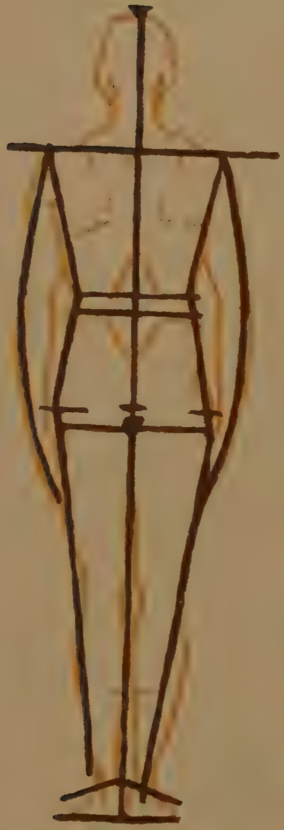
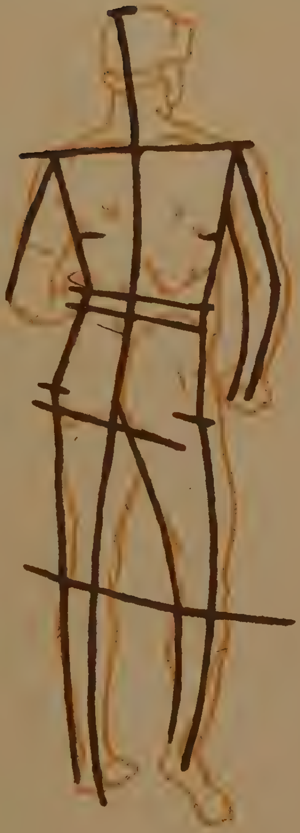
CONSTRUCTION LINES OF THE STANDING FIGURE.
BACK VIEW.





The above diagrams show the leading constructive lines of the back view of the figure in similar positions to those already shown in the front view. The greater length of the trunk as viewed from behind will be observed on comparison with the front view. The lines across the back are drawn through the shoulders, the lower end of the thorax, the iliac crests, and the gluteal fold.

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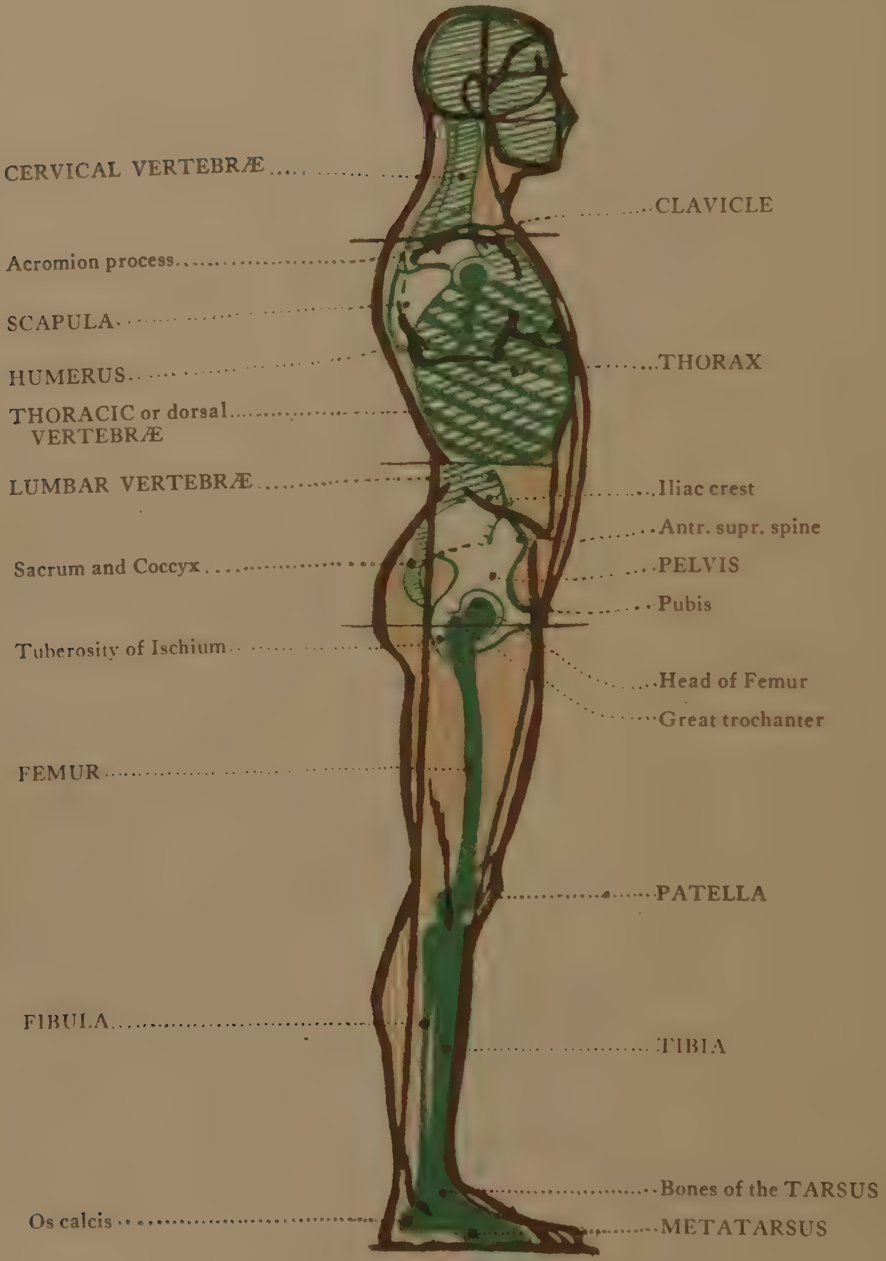
THE BONES IN RELATION TO OUTLINE OF FIGURE.
SIDE VIEW.



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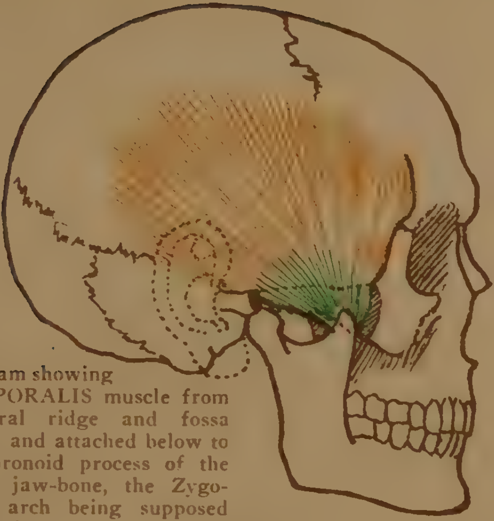


Diagram showing TEMPORALIS muscle from temporal ridge and fossa above, and attached below to the coronoid process of the lower jaw-bone, the Zygomatic arch being supposed removed

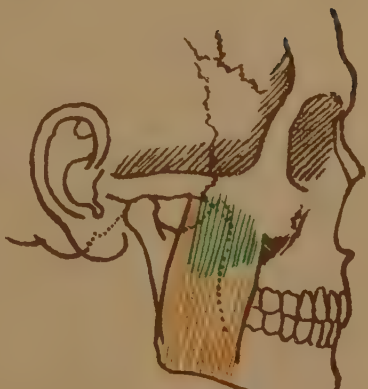
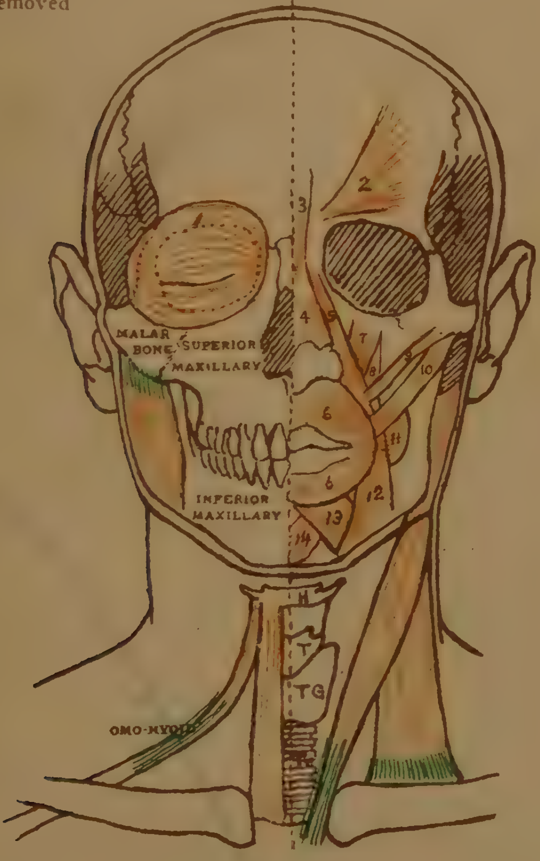


Diagram showing MASSETER muscle attached to the Zygomatic arch and to the lower jaw-bone



H. Hyoid bone
T. Thyroid cartilage of the Larynx (Pomum Adami)
T.G. Thyroid gland
Tr. Trachea or windpipe

References to muscles of the face

1. ORBICULARIS PALPEBRARUM from the tendo-palpebrarum, the frontal bone and superior maxillary, at the inner margin of orbit; it blends with occipito-frontalis and other muscles
2. CORRUGATOR SUPERCILII from frontal bone at the internal angular process; it blends with occipito-frontalis
3. PYRAMIDALIS NASI a small slip prolonged downwards from the occipito-frontalis to the nasal bones
4. COMPRESSOR NARIS from superior maxillary bone to the cartilage of the wing of the nose, and expands to the bridge of the nose
5. LEVATOR LABII SUPERIORIS ALÆQUE NASI from superior maxillary to cartilage of nose and to the upper lip
6. ORBICULARIS ORIS the oval muscle which forms the chief mass of the lips
   The following muscles are inserted into the muscular substance of the lips
7. LEVATOR LABII SUPERIORIS from the superior maxillary and the malar bone to the upper lip
8. LEVATOR ANGULI ORIS from superior maxillary to corner of mouth
9. ZYGOMATICUS MINOR } from malar bone to corner of mouth
10. „ MAJOR }
11. BUCCINATOR from both superior and inferior maxillary bones to the corner of the mouth
12. DEPRESSOR ANGULI ORIS from inferior maxillary to corner of mouth
13. DEPRESSOR LABII INFERIORIS from inferior maxillary to lower lip
14. LEVATOR MENTI from inferior maxillary to the integument of the chin

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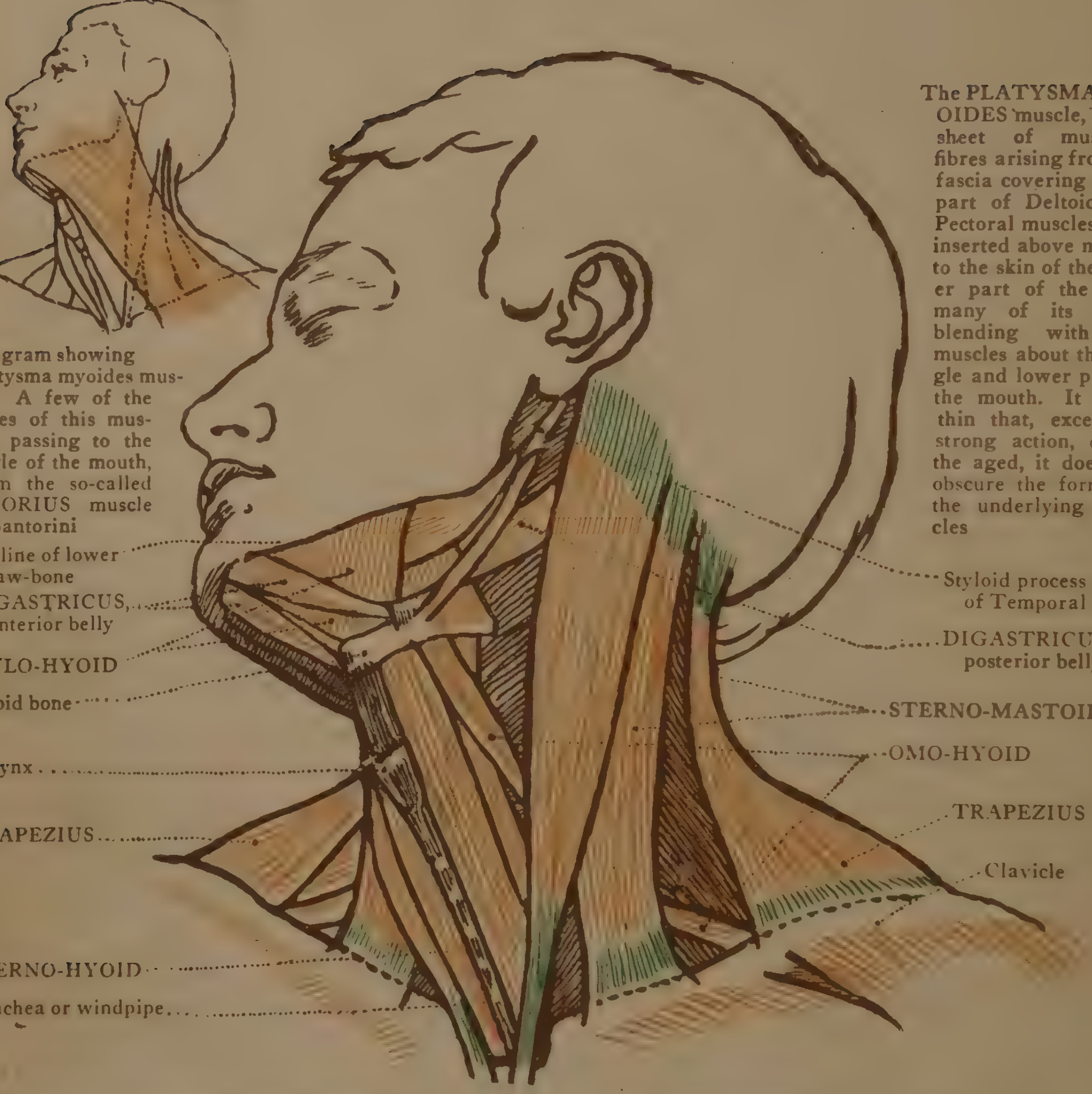
Outline of lower jaw-bone
DIGASTRICUS, anterior belly
MYLO-HYOID
Hyoid bone
Larynx
TRAPEZIUS
STERNO-HYOID
Trachea or windpipe
Styloid process of Temporal bone
DIGASTRICUS, posterior belly
STERNO-MASTOID
OMO-HYOID
TRAPEZIUS
Clavicle

Diagram showing Platysma myoides muscle. A few of the fibres of this muscle, passing to the angle of the mouth, form the so-called RISORIUS muscle of Santorini

The PLATYSMA MYOIDES muscle, a thin sheet of muscular fibres arising from the fascia covering upper part of Deltoid and Pectoral muscles. It is inserted above mainly to the skin of the lower part of the face, many of its fibres blending with the muscles about the angle and lower part of the mouth. It is so thin that, except in strong action, or in the aged, it does not obscure the forms of the underlying muscles

The STERNO-MASTOID muscle arises by two heads from the Sternum and Clavicle; it is inserted into the mastoid process of the Temporal bone and to the superior curved line of the Occipital bone. The sternal origin is in the form of a rounded tendon; it is separated by an interval from the clavicular origin which is composed of fleshy and aponeurotic fibres

The STERNO-HYOID muscle arises from the Clavicle and Sternum and is inserted into the Hyoid bone

The OMO-HYOID muscle passes from the upper border of the Scapula to the Hyoid bone. It consists of two fleshy bellies united by a central tendon, which is held in position by fascia attached to the Cartilage of the 1st Rib and to Sternum

The DIGASTRICUS muscle consists of two fleshy bellies united by an intermediate, rounded tendon, held in connection with the side of the Hyoid bone by a fibrous loop. The posterior belly arises from the mastoid process of the Temporal bone; the anterior belly arises from the lower jaw-bone

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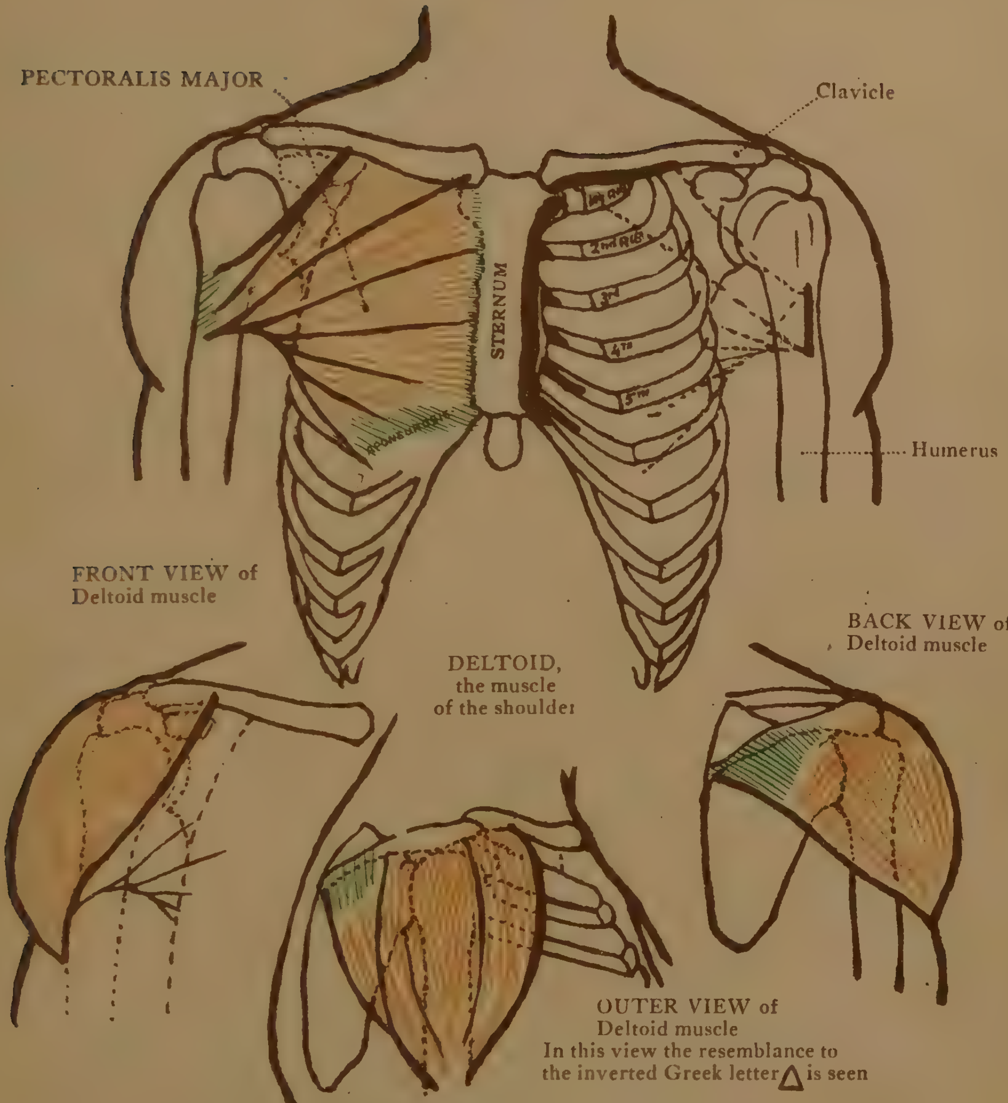
MUSCLES OF THE TRUNK.



OUTER VIEW of
Deltoid muscle
In this view the resemblance to
the inverted Greek letter Δ is seen

The PECTORALIS MAJOR muscle
arises from the
Clavicle, inner third,
Sternum,
Cartilages of ribs, 2nd to 6th,
and from the
Aponeurosis of the External oblique muscle
It is inserted into the
Humerus, at the outer lip of the bicipital groove

The DELTOID muscle
arises from the
Scapula, spine and acromion process,
Clavicle, outer third,
and is inserted into the
Humerus at the V-shaped deltoid impression

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MUSCLES OF THE TRUNK.

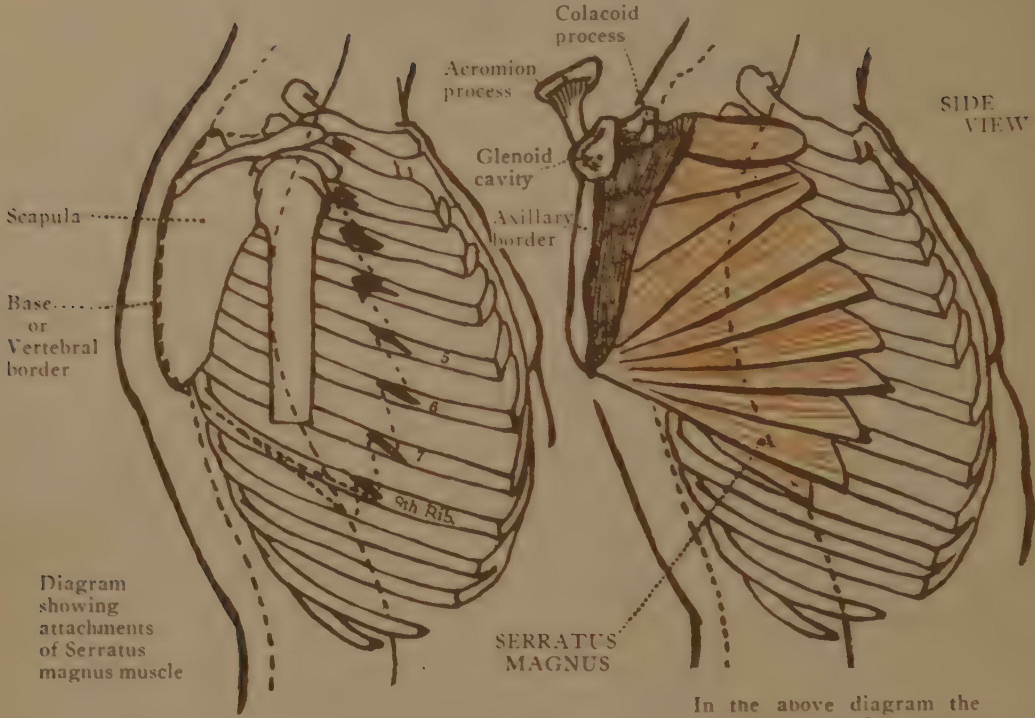
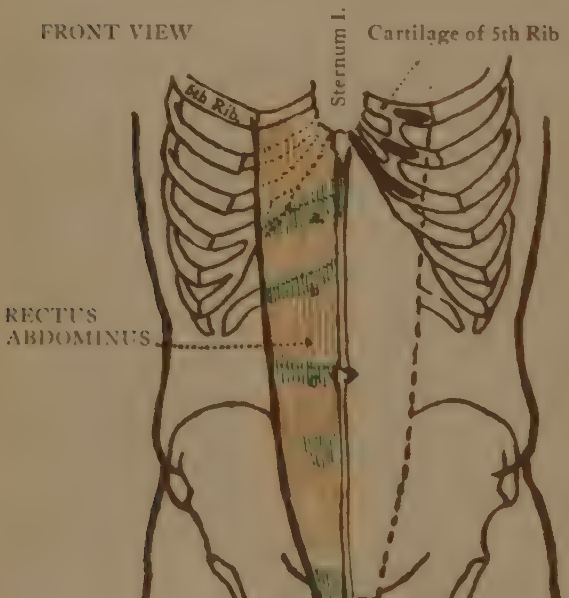


Diagram showing attachments of Serratus magnus muscle

In the above diagram the axillary border of the Scapula is moved away from the side of the trunk to show the complete muscle.

FRONT VIEW



The **SERRATUS MAGNUS** muscle arises from the upper 8 Ribs and the intervening Costal fascia,

and is inserted into the base or vertebral border of the Scapula.

The muscle lies between the Scapula and the ribs.

NOTE—

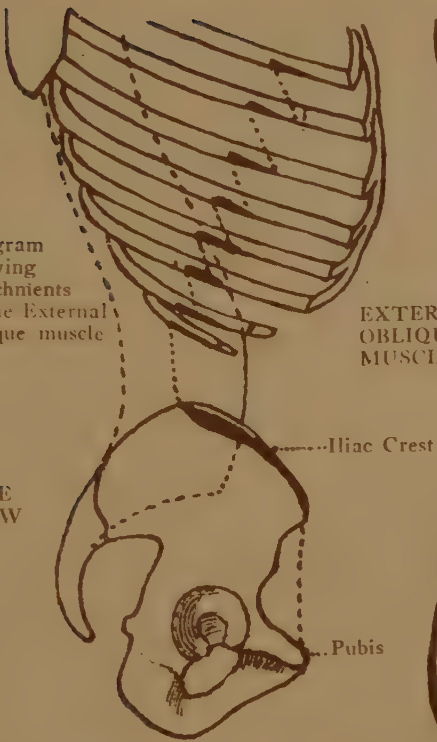
The serrated markings of the superficial part of this muscle lie in a curved line, with convexity downwards, which being continued would pass through the nipple.

The **RECTUS ABDOMINIS** is attached above to the Cartilages of the 5th, 6th, and 7th Ribs, and to the tip of the Sternum.

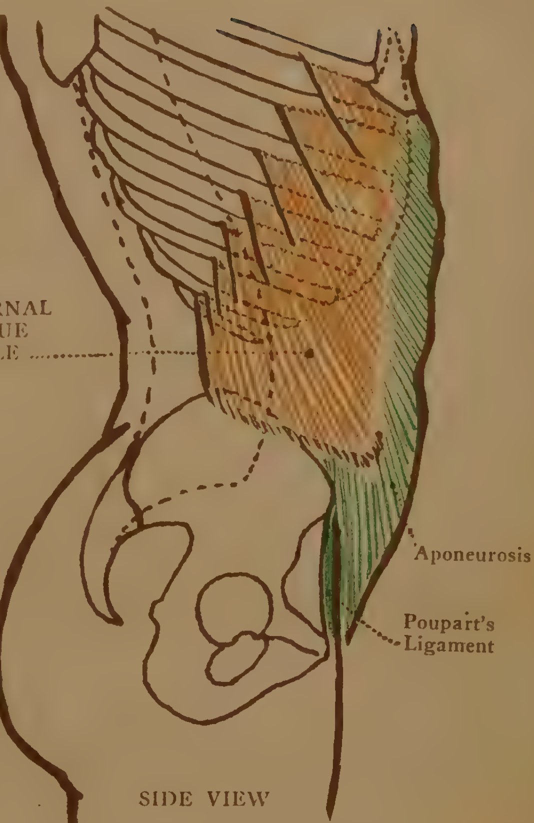
It is attached below to the Pelvis at the Pubic crest and Pubic symphysis.

The tendinous intersections of the Rectus are marked on the diagram a. b. c.

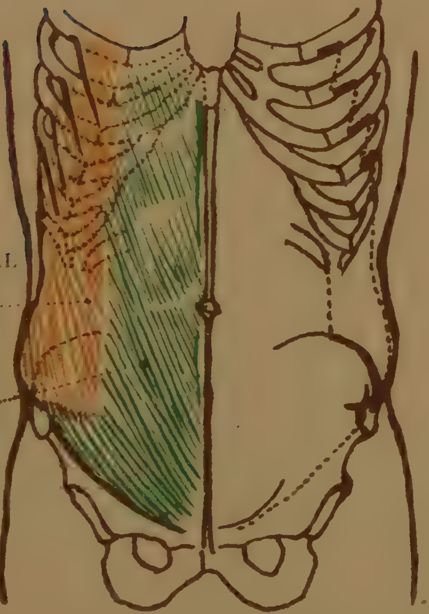
MUSCLES OF THE TRUNK.



SIDE VIEW



SIDE VIEW


EXTERNAL OBLIQUE muscle
Aponeurosis
Poupart's ligament, corresponding in surface form with the Fold of the Groin

FRONT VIEW

The EXTERNAL OBLIQUE muscle is attached above to the lower 8 Ribs by 8 digitations; below, it is attached to the Pelvis at the anterior third of the Iliac crest, and to the Aponeurosis which covers the front of the Abdomen and encloses the Rectus.

This Aponeurosis is connected above with the lower border of the Pectoralis major muscle; below, the part of the aponeurosis which extends between the anterior superior iliac spine and the Pubis is called Poupart's ligament. In the median line of the abdomen the interlacing of the aponeuroses of the opposite muscles forms the Linea alba, which extends from the ensiform cartilage or tip of the Sternum to the Pubis.

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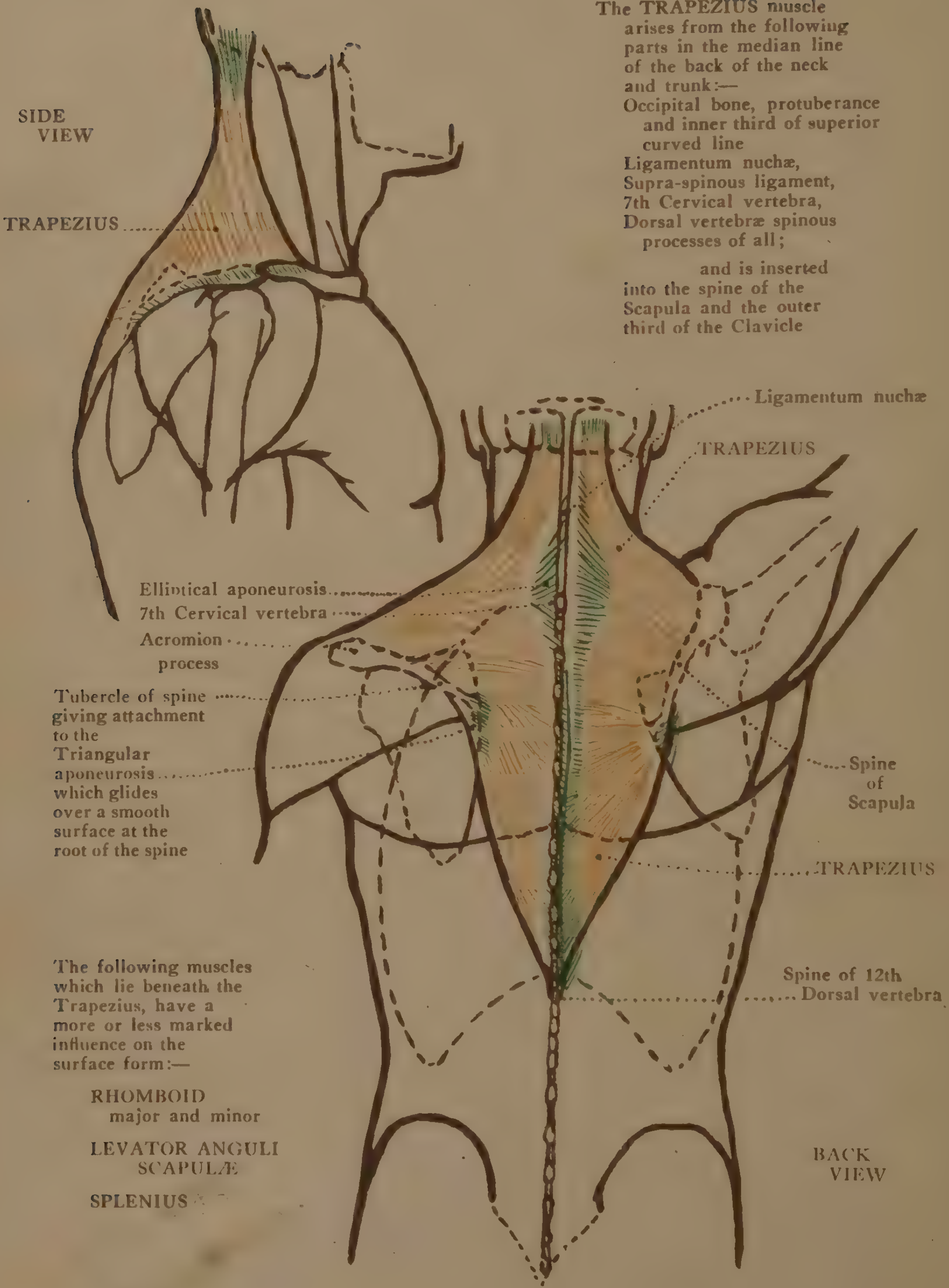
MUSCLES OF THE TRUNK.

The **TRAPEZIUS** muscle arises from the following parts in the median line of the back of the neck and trunk:—

Occipital bone, protuberance and inner third of superior curved line
Ligamentum nuchæ,
Supra-spinous ligament,
7th Cervical vertebra,
Dorsal vertebræ spinous processes of all;

and is inserted into the spine of the Scapula and the outer third of the Clavicle


SIDE VIEW
TRAPEZIUS
Ligamentum nuchæ
TRAPEZIUS
Elliptical aponeurosis
7th Cervical vertebra
Acromion process
Tubercle of spine giving attachment to the Triangular aponeurosis which glides over a smooth surface at the root of the spine
Spine of Scapula
TRAPEZIUS
Spine of 12th Dorsal vertebra
BACK VIEW

The following muscles which lie beneath the Trapezius, have a more or less marked influence on the surface form:—

RHOMBOID major and minor

LEVATOR ANGULI SCAPULÆ

SPLENIUS

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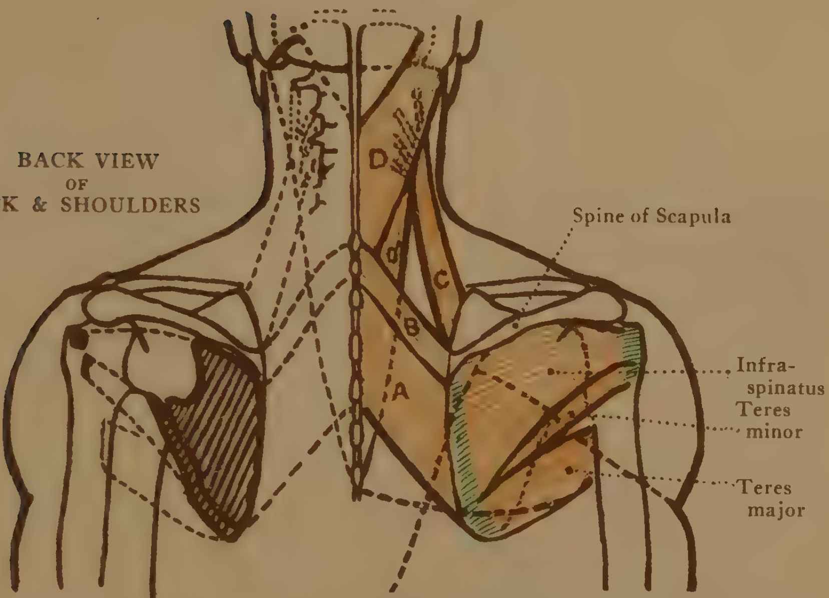
BACK VIEW
OF
NECK & SHOULDERS

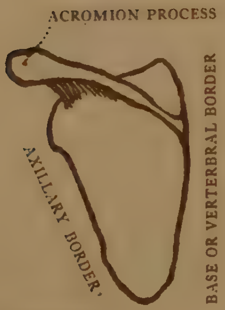


Muscles covered by Trapezius

A.—RHOMBOIDEUS MAJOR }
B.— „ MINOR } arise
from the spines of the vertebræ,
7th Cervical to 4th or 5th Dorsal,
and are inserted into the
base of the Scapula.

C.—LEVATOR ANGULI SCAPULÆ
arises from the transverse processes
of the upper 4 Cervical vertebræ
and is inserted into the upper
part of the base of the Scapula.

D. }
D′ } —SPLENIUS arises from the
ligamentum nuchae and from
the spines of the vertebræ,
7th Cervical and 6 upper Dorsal.
It divides into the Splenius Capitis (D),
inserted into mastoid process of
Temporal bone, and Splenius Colii (D′)
inserted into transverse processes
of 2 or 3 upper Cervical vertebræ.



Back view
of
Scapula

Muscles which are superficial in the triangular interval bounded by the Trapezius, Deltoid, and Latissimus Dorsi.

INFRA-SPINATUS arises from the back of the Scapula and from the strong fascia which covers the muscle. It is inserted into the back of the great tuberosity of the Humerus, uniting its tendon with that of the Teres minor.

TERES MINOR arises from the back of the Scapula at its axillary border and is inserted into the Humerus immediately below the Infra-spinatus tendon.

TERES MAJOR arises from the back of the inferior angle of the Scapula and, passing to the front of the Humerus, is inserted into the inner lip of the bicipital groove.

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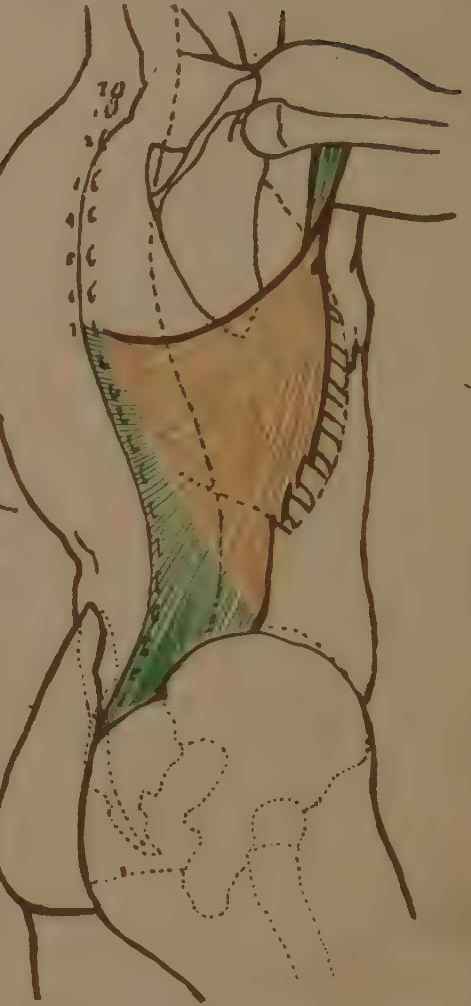
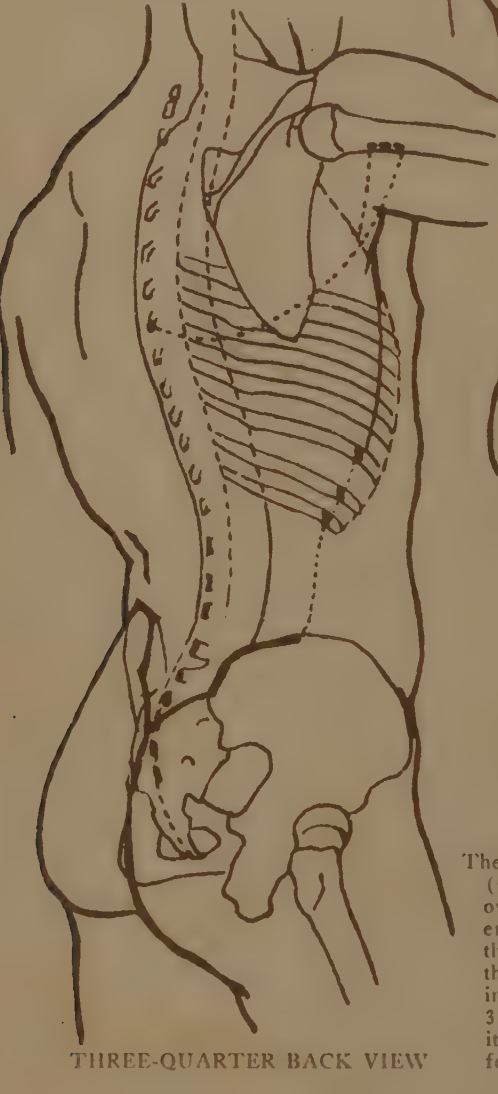
The **LATISSIMUS DORIS** muscle
arises from the
Dorsal vertebræ, spines of lower 5 or
Lumbar „ spines of all,
Sacral „ upper 2 or 3,
the Supra-spinous ligament,
the Pelvis posterior third of iliac crest,
the Ribs, lower 3 or 4.

It is inserted into the Humerus at the bottom of the bicipital groove by a short flat tendon which passes in front of, and partly blends with the tendon of the Teres major.





THREE-QUARTER BACK VIEW

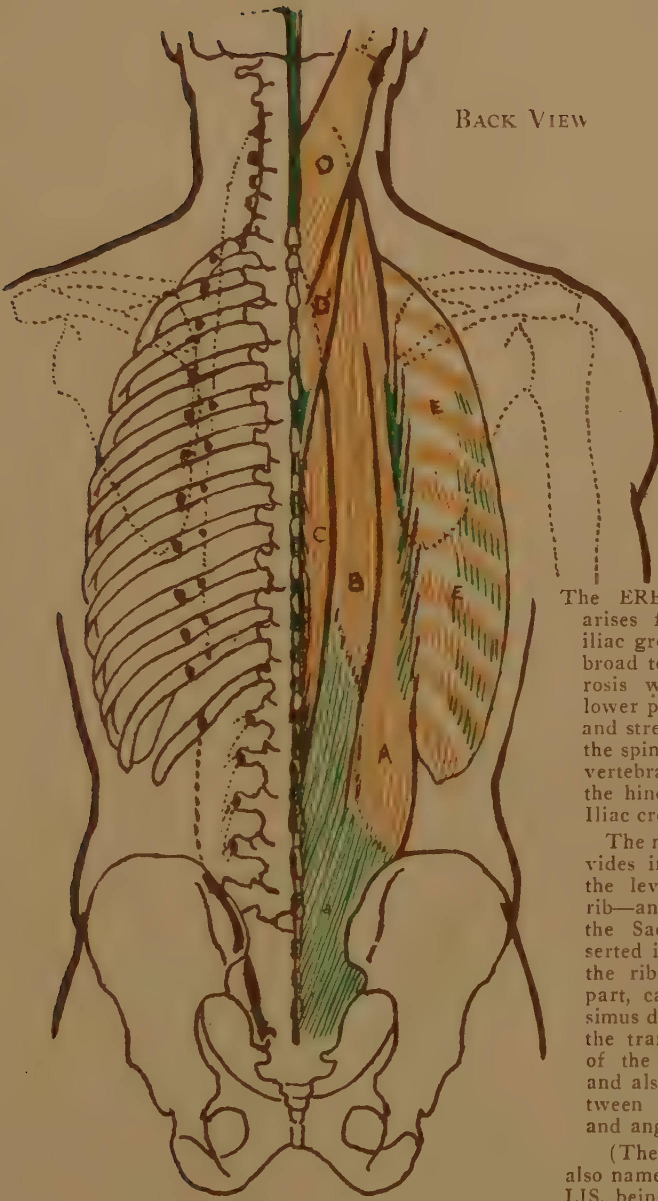
The following muscles, which lie beneath the Latissimus dorsi, are more or less revealed through its thinner parts:—

ERECTOR SPINÆ.
SERRATUS POSTICUS INFERIOR.
SERRATUS MAGNUS.

The anterior border of the Latissimus dorsi gives a distinct surface form, and at its upper part it combines with the Teres major, forming the posterior border of the Axilla or armpit.

The **SERRATUS POSTICUS INFERIOR** (see complete view of muscles of the back) overlies part of the Erector spinae and is covered by the Latissimus dorsi. It arises by a thin aponeurosis from the spines of 3 or 4 of the vertebræ, dorsal and lumbar, and divides into 4 flat digitations, which are inserted into 3 or 4 of the lower ribs. The vertical line of its fleshy digitations may influence surface form when the muscle is in strong action.

MUSCLES OF THE TRUNK.



References
a. Aponeurosis of Erector spinæ
A. Sacro-lumbalis, the outer part of the Erector spinæ
B. Longissimus dorsi, the inner part of the Erector spinæ
C. Spinalis dorsi; blends with the longissimus dorsi
D. Splenius capitis (of the head)
D'. Splenius colli of the Neck)
E. Intercostal muscles, filling the spaces between the ribs

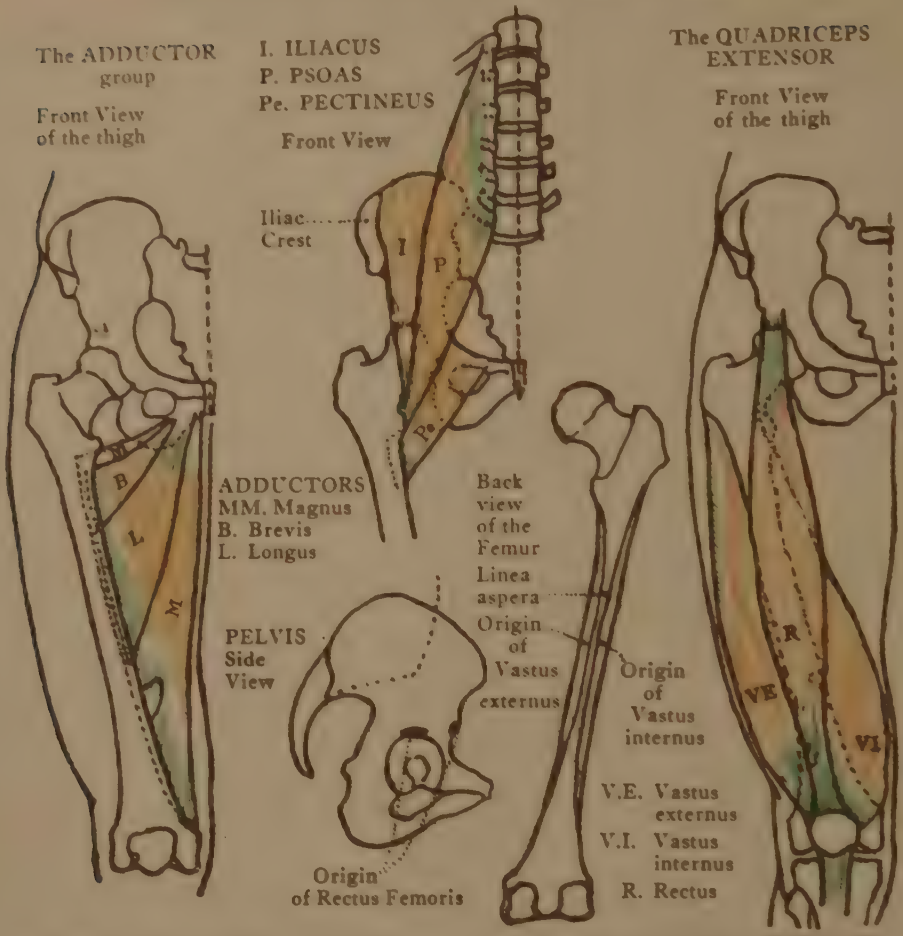
The ERECTOR SPINÆ arises from the Sacro-iliac groove, and from a broad tendon or aponeurosis which covers the lower part of the muscle and stretches across from the spines of the Lumbar vertebræ and sacrum, to the hinder fourth of the Iliac crest

The muscular mass divides into two parts at the level of the lowest rib—an outer part called the Sacro lumbalis inserted into the angles of the ribs; and an inner part, called the Longissimus dorsi, inserted into the transverse processes of the Dorsal vertebræ and also to the Ribs, between their tubercles and angles

(The Sacro lumbalis is also named ILIO COSTALIS, being attached to the Ilium below and the Ribs above)

The Erector spinæ muscles, with their complicated accessory muscles and prolongations into the neck, fill in the grooves seen in an articulated skeleton, between the spines of the vertebræ and the angles of the ribs on either side. Although covered by the superficial muscles, these fleshy columns have a decided influence on the surface form, more especially in the lumbar region of the back.

MUSCLES OF THE THIGH—Front View.



Flexors of the THIGH on the body

The ILIACUS, from the Pelvis at the iliac crest and iliac fossa
and
PSOAS, from the vertebræ are inserted together into the lesser trochanter of the Femur

Adductors of the THIGH

The PECTINEUS, from the Pelvis, at the iliopectineal line, to the back of the Femur

The ADDUCTOR LONGUS from the Pubic portion of the Pelvis to the linea aspera, or rough line, on the back of the Femur

The ADDUCTOR MAGNUS from the Pubis and Ischium it is inserted into the whole length of the linea aspera. The internal portion of the muscle terminates in a tendon attached to the Adductor tubercle on the inner condyle of the Femur

The QUADRICEPS EXTENSOR

The RECTUS FEMORIS arises by two tendons from the Pelvis, at the Anterior inferior iliac spine, and from a groove over the acetabulum

The VASTUS EXTERNUS arises from the Femur at the great trochanter and along the outer lip of the linea aspera, or rough line, on the back of the Femur

The VASTUS INTERNUS and CRUREUS (deep seated, being covered by the Rectus) from the inner lip of linea aspera and from almost the whole length of front and inner side of shaft of Femur

These four muscles are, together, called the Quadriceps extensor. Their tendons uniting below, are inserted into the Patella, and are continued by the ligamentum patellæ to be ultimately attached to the tubercle of the Tibia

The Patella may be regarded as a sesamoid bone developed in the tendon of the Quadriceps extensor. Note that the fleshy fibres of the Vastus internus descend lower than those of the Vastus externus

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MUSCLES OF THE THIGH—Front View.

SARTORIUS
and
GRACILIS

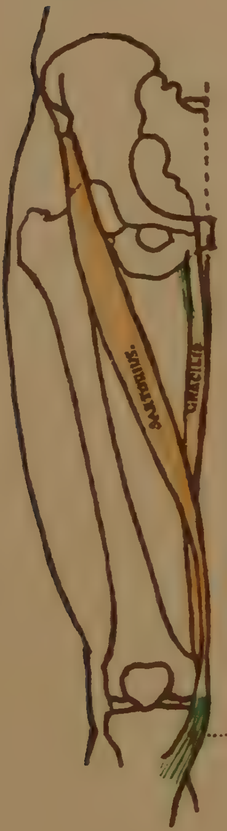
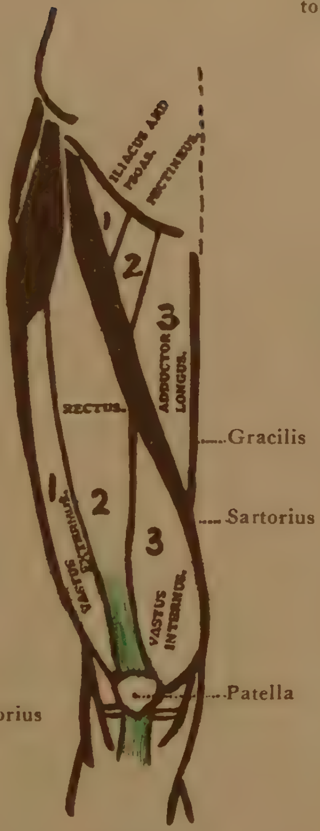


Diagram of
muscles on
front of thigh



Mnemonic of the arrangement of muscles on front of thigh, the cross line of the letter N representing the Sartorius

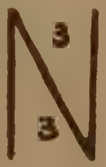
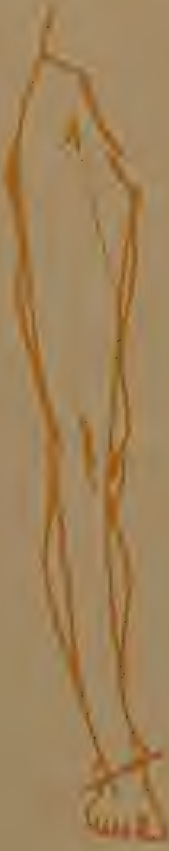
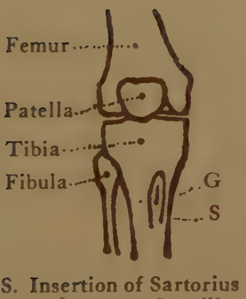


Diagram of front view of lower limb with suggested lines of construction





S. Insertion of Sartorius
G. „ „ Gracilis

The SARTORIUS muscle arises from the anterior superior iliac spine, and is inserted by an aponeurosis into the upper part of the inner surface of the Tibia

The GRACILIS arises from the margin of the Pubic symphysis, and descending ramus of the Pubis. It tapers down to a long tendon which passes close behind the Sartorius, to be inserted into the Tibia

Note.—The blending of the line of the Sartorius muscle with the subcutaneous surface of the Tibia forms an important running line in drawing the front view of the leg

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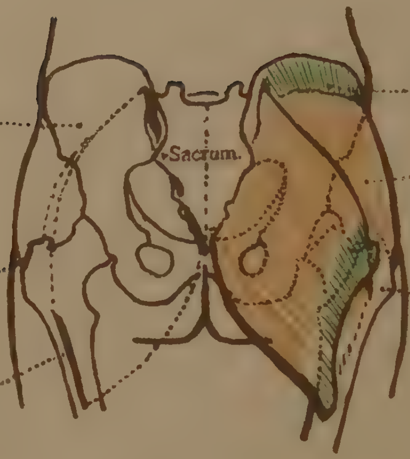
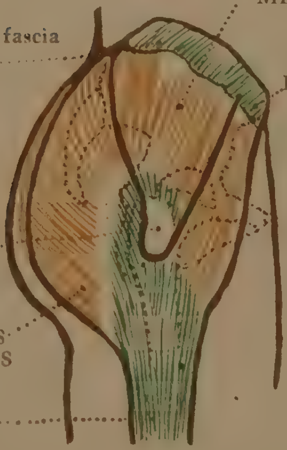
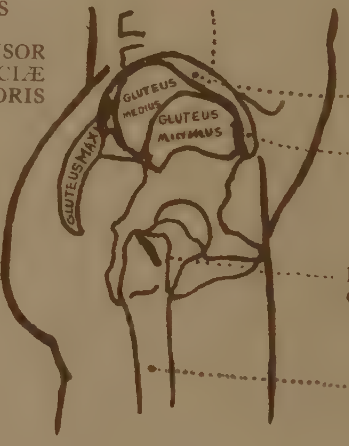

BACK VIEW
Pelvis
Sacrum.
Attachment of Gluteus medius
Attachment of deep fibres of lower half of Gluteus maximus
Part of fascia covering Gluteus medius
GLUTEUS MEDIUS
Great trochanter of the Femur



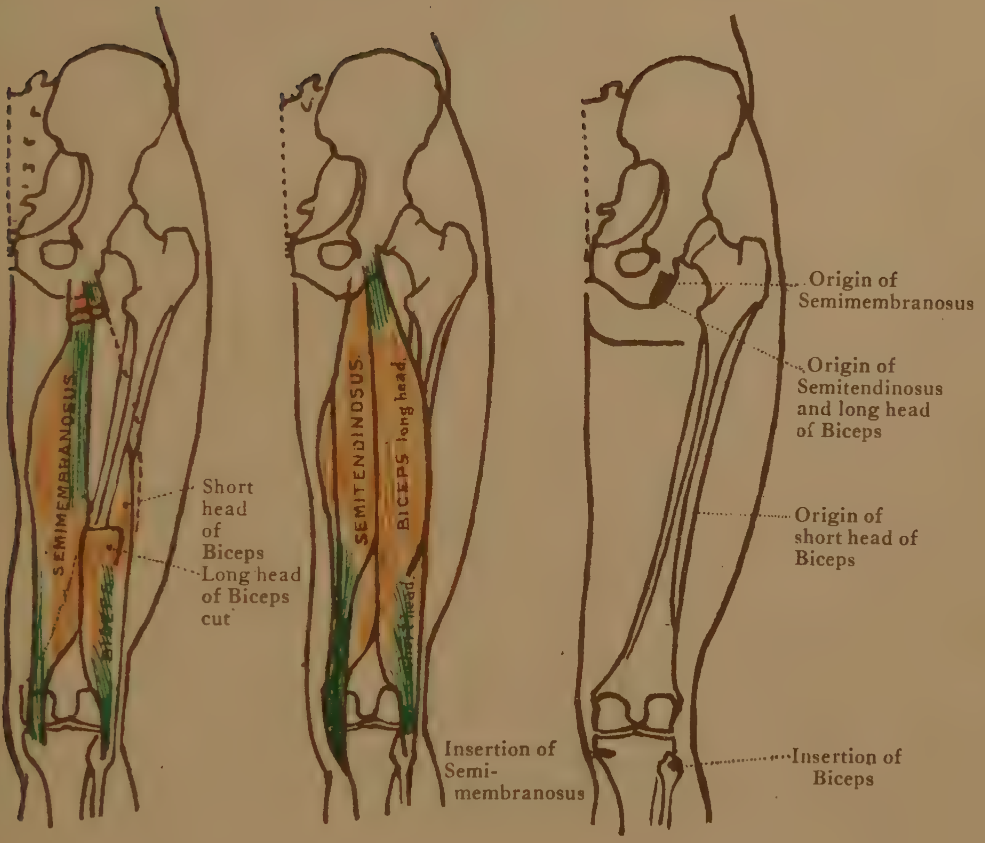

SIDE VIEW
Attachment of muscles to the bones
GLUTEUS MEDIUS
GLUTEUS MINIMUS
GLUTEUS MAX
Pelvis
Origin of Tensor fasciæ femoris
Insertion of Gluteus medius
Femur

The GLUTEUS MAXIMUS muscle arises from the posterior fourth of the iliac crest, from the Sacrum and Coccyx, from the aponeurosis of the Erector spinæ muscle, and from the great Sacrosciatic ligament. The deeper fibres of the lower half of the muscle are inserted into the linea aspera on the back of the Femur; the fibres of the upper half and the superficial fibres of the lower portion, terminate in a strong tendinous lamina which passes across the great trochanter and is inserted into the fascia lata of the thigh

The GLUTEUS MEDIUS muscle (partly covered by the G. maximus; and its superficial portion lying between G. maximus and the Tensor fasciæ femoris, covered by a strong fascia) arises from the iliac crest and part of the outer surface of the Ilium. It converges to a strong flattened tendon, which is inserted into the great trochanter of the Femur

The TENSOR VAGINÆ or FASCIÆ FEMORIS arises from the iliac crest close to he antr. supr. iliac spine. It is inserted into the fascia lata

MUSCLES OF THE THIGH—Back View.


SEMIMEMBRANOSUS
BICEPS
Short head of Biceps
Long head of Biceps cut
SEMITENDINOSUS.
BICEPS long head
short head
Insertion of Semi-membranosus
Origin of Semimembranosus
Origin of Semitendinosus and long head of Biceps
Origin of short head of Biceps
Insertion of Biceps

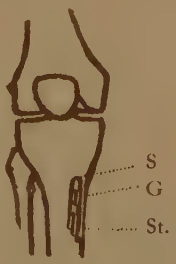
The HAMSTRING muscles,
flexors of the leg

The BICEPS (the outer hamstring) arises by two heads; the long head from the back of the tuberosity of the Ischium by a tendon common to it and the Semitendinosus; the short head from part of the linea aspera on the back of the Femur. It is inserted into the head of the Fibula with an expansion of the tendon to the Tibia.

The SEMITENDINOSUS (together with the semimembranosus forming the inner hamstring), arises from the tuberosity of the Ischium. It tapers below to a very long tendon inserted into the upper part of the inner surface of the Tibia.

The SEMIMEMBRANOSUS (so named from the membranous expansion on its anterior and posterior surfaces) arises from the tuberosity of the Ischium and is inserted into the back of the inner tuberosity of the Tibia.

Front View of the bones
at the knee



St. Insertion of Semitendinosus
G Insertion of Gracilis
S „ „ Sartorius

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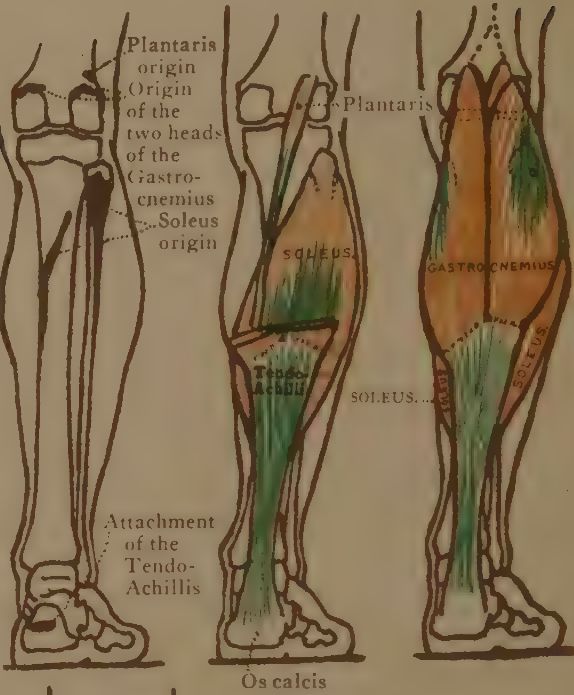
Muscles of the calf of the leg

The GASTROCNEMIUS muscle arises by two heads from the Femur immediately above the condyles, and ends below in a broad tendon which joins with that of the Soleus to form the Tendo-Achillis. Each tendon of origin spreads out into an aponeurosis from which some of the muscular fibres arise. The two heads meet in the median line of the calf

The SOLEUS, a broad flat muscle, shaped like a sole-fish, arises from the back of the Tibia and Fibula. The fleshy fibres are short and pass backward to an aponeurosis which joins below with the tendon of the Gastrocnemius, forming the Tendo-Achillis, which is inserted into the Os calcis or heel-bone

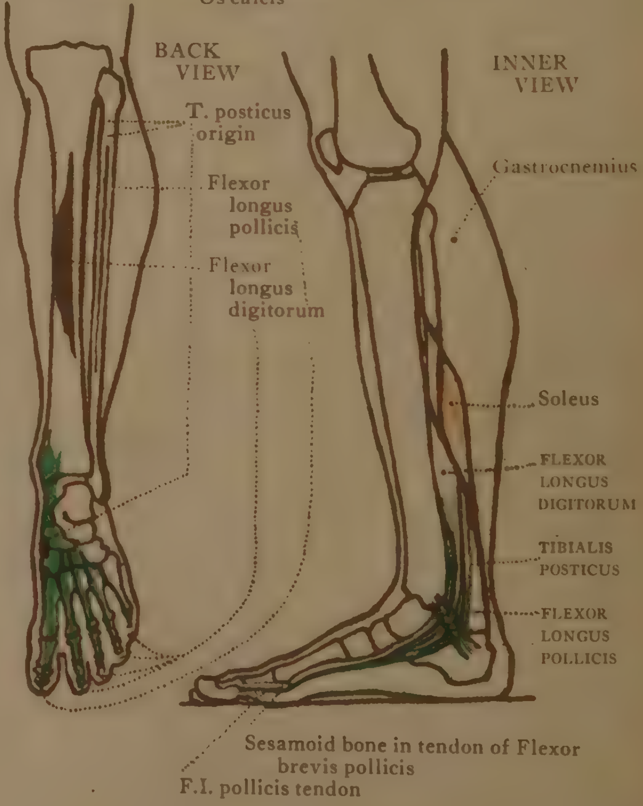


Deep muscles of the back of the leg. These muscles are superficial only at the lower part of the inner border of the leg. They arise from the back of the Tibia and Fibula and from the interosseous membrane, which extends between these two bones and separates the muscles of the front from those on the back of the leg.

The FLEXOR LONGUS DIGITORUM terminates below in a tendon which descends behind the inner malleollus along with the T. posticus, and crossing superficially to the tendon of the Flexor longus pollicis, passes into the sole of the foot and divides into four tendons for the outer toes.

The TIBIALIS POSTICUS is inserted into the Scaphoid bone, with prolongations to most of the tarsal and metatarsal bones.

The FLEXOR LONGUS POLLICIS or HALLUCIS, almost entirely hidden, is inserted into the base of the last phalanx of the great toe.



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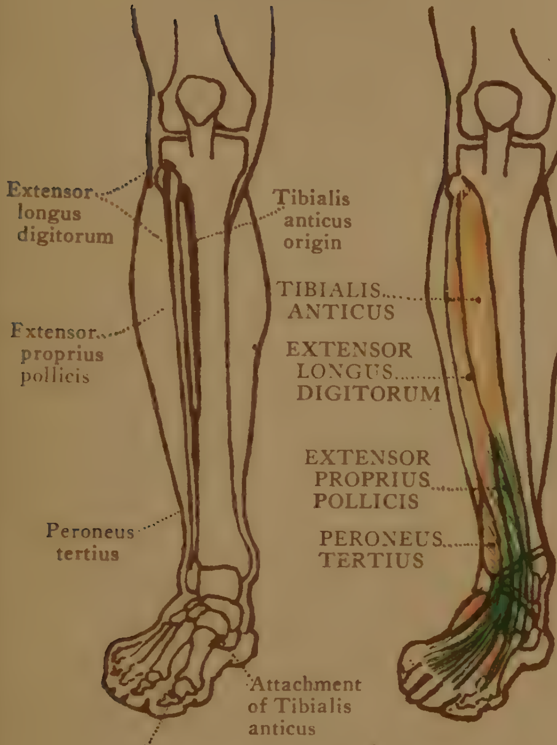
MUSCLES OF THE LEG—Front View.


Extensor longus digitorum
Tibialis anticus origin
TIBIALIS ANTICUS
Fxtensor proprius pollicis
EXTENSOR LONGUS DIGITORUM
EXTENSOR PROPRIUS POLLICIS
Peroneus tertius
PERONEUS TERTIUS
Attachment of Tibialis anticus
Attachment of Extensor proprius pollicis

The TIBIALIS ANTICUS arises from the Tibia at its outer tuberosity and outer surface of the shaft, and from the interosseous membrane. Its tendon, after passing through the innermost compartment of the anterior annular ligament, is inserted into the inner cuneiform bone and the base of the metatarsal bone of the great toe

The EXTENSOR PROPRIUS POLLICIS or HALLUCIS (of the great toe) arises from the front of the Fibula and the interosseous membrane. Its tendon, passing through a compartment of the annular ligament, is inserted into the base of the last phalanx of the great toe

The EXTENSOR LONGUS. DIGITORUM arises from the outer tuberosity of the Tibia and the upper three-fourths of the shaft of the Fibula, and from the interosseous membrane. Its tendon passing through the annular ligament divides into four slips which are inserted into the four outer toes at their 2nd and 3rd phalanges

The PERONEUS TERTIUS is a part of the Ex. longus digitorum. It arises from the lower fourth of the shaft of the Fibula. The tendon, after passing through the same compartment of the annular ligament as the Ex. longus, is inserted into the base of the metatarsal bone of the little toe

The PERONEUS LONGUS arises from the head and upper two-thirds of outer surface of the shaft of the Fibula. It terminates in a long tendon, which, passing behind and beneath the outer malleolus in a groove common to it and the Peroneus brevis, is directed forwards and downwards to the outer border of the foot and enters a groove on the under surface of the Cuboid bone; it then passes deeply across the sole of the foot to be inserted into the inner cuneiform bone and the base of the metatarsal bone of the great toe.

The PERONEUS BREVIS lies beneath the Peroneus longus and arises from the lower two-thirds of the outer surface of the shaft of the Fibula. Its tendon passes behind the outer malleolus along with the Peroneus longus, and separating from the latter at that point, turns forward along the outer side of the foot, to be inserted into the tuberosity of the 5th metatarsal bone

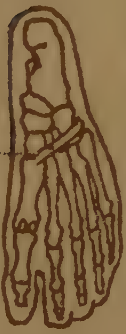
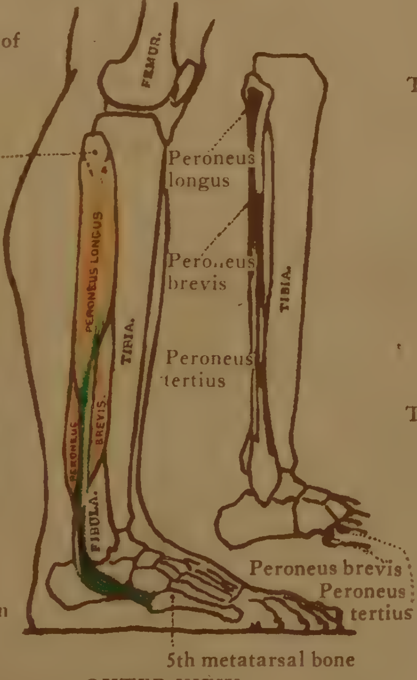
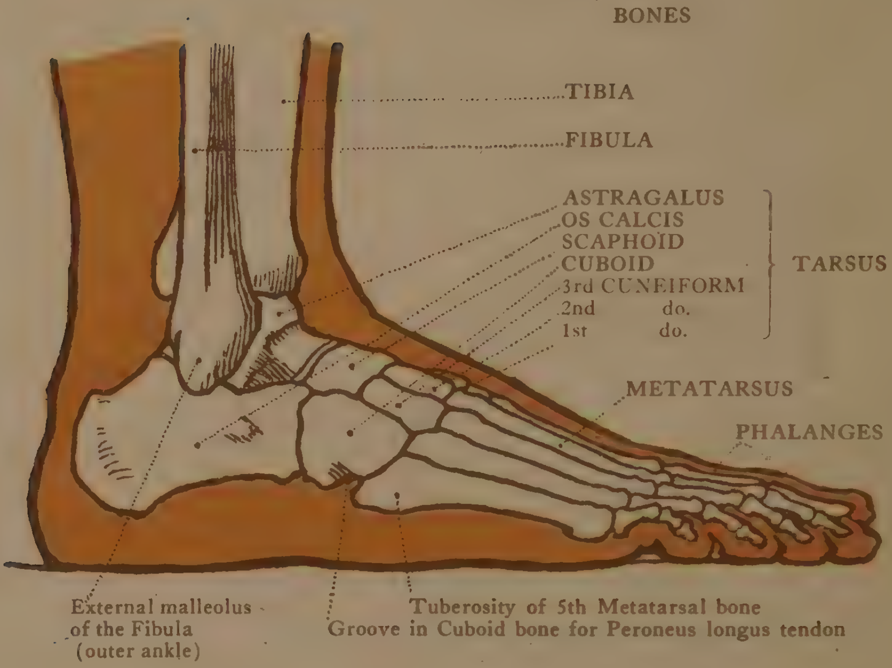


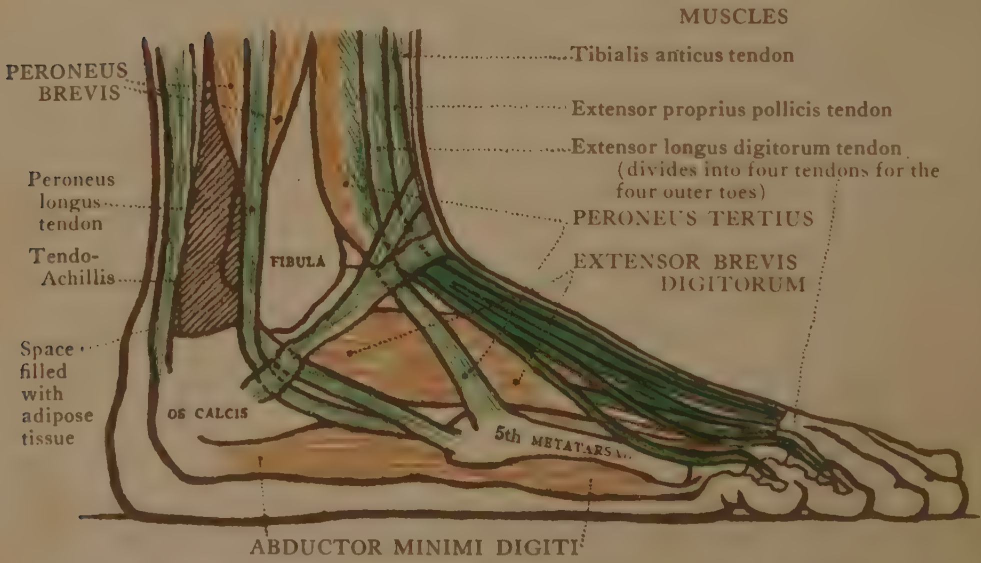
Diagram of bones of sole of foot showing Peroneus longus tendon passing across to its insertion



OUTER VIEW

OUTER VIEW OF THE FOOT.


BONES
TIBIA
FIBULA
ASTRAGALUS
OS CALCIS
SCAPHOID
CUBOID
3rd CUNEIFORM
2nd do.
1st do.
TARSUS
METATARSUS
PHALANGES
External malleolus of the Fibula (outer ankle)
Tuberosity of 5th Metatarsal bone
Groove in Cuboid bone for Peroneus longus tendon


MUSCLES
Tibialis anticus tendon
Extensor proprius pollicis tendon
Extensor longus digitorum tendon (divides into four tendons for the four outer toes)
PERONEUS TERTIUS
EXTENSOR BREVIS DIGITORUM
PERONEUS BREVIS
Peroneus longus tendon
Tendo-Achillis
Space filled with adipose tissue
FIBULA
OS CALCIS
5th METATARSAL
ABDUCTOR MINIMI DIGITI

The ABDUCTOR MINIMI DIGITI arises from the os calcis and is inserted into the 1st phalanx of the little toe. It is slightly attached in its course to the base of the 5th metatarsal bone

The EXTENSOR BREVIS DIGITORUM arises from the os calcis and sends tendons to the four inner toes. This muscle causes an important surface form in front of the outer ankle

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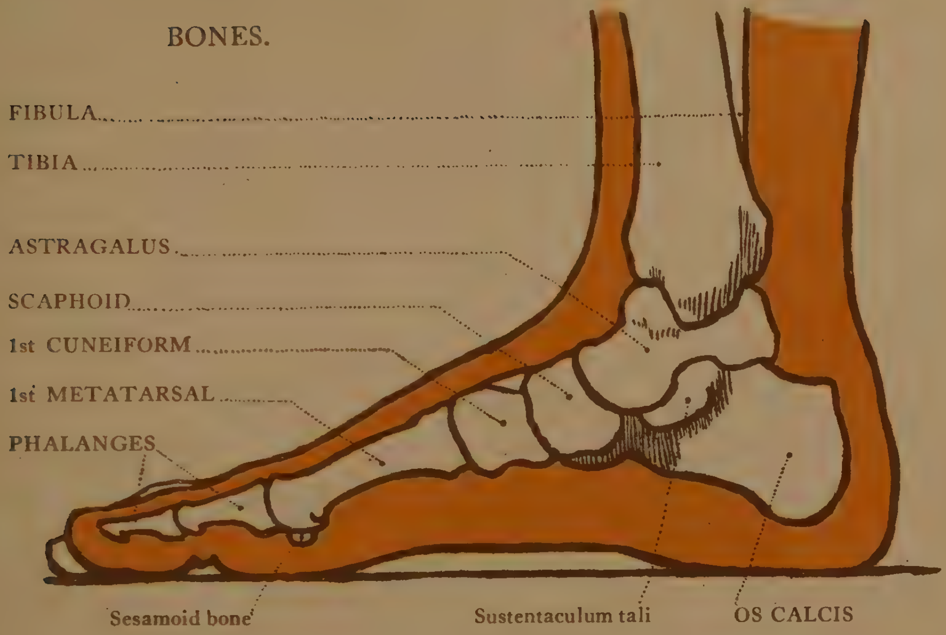
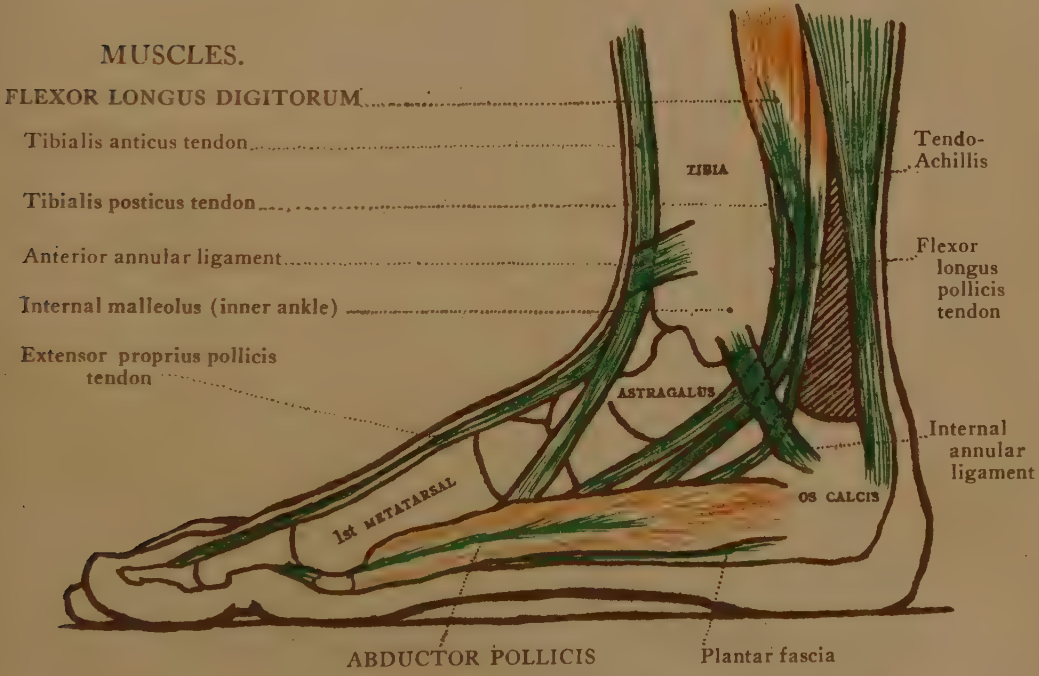
INNER VIEW OF THE FOOT.

BONES.

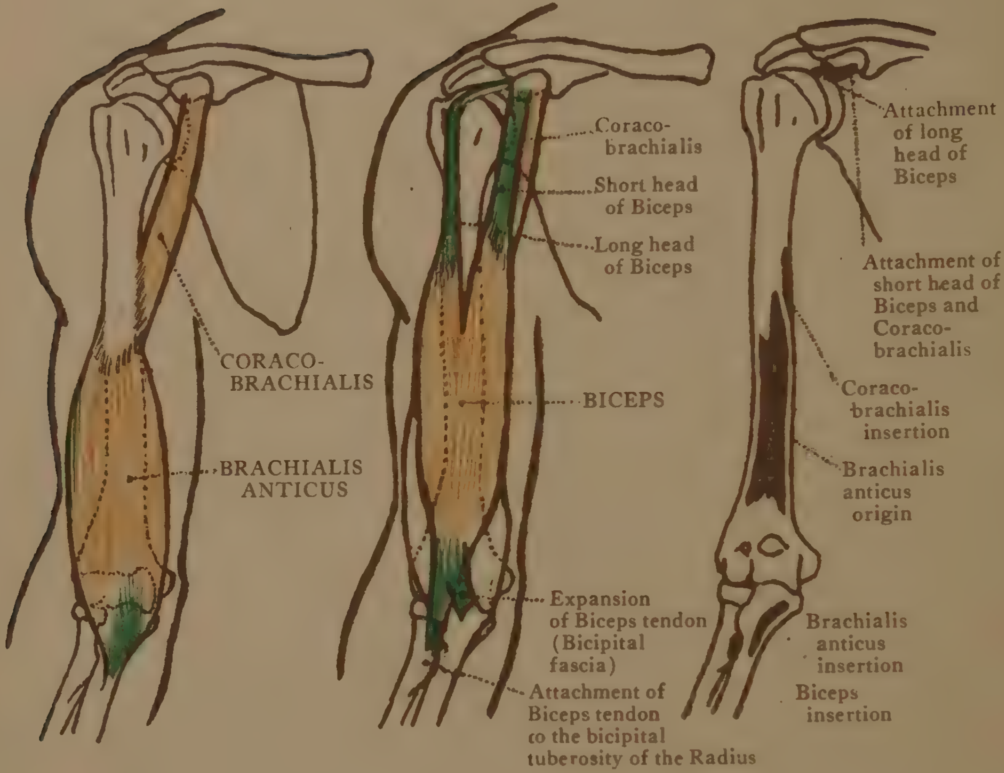


MUSCLES.



The ABDUCTOR POLLICIS arises from the os calcis and is inserted into the internal sesamoid bone and the 1st phalanx of the great toe

MUSCLES OF THE ARM—Front View.


CORACO-BRACHIALIS
BRACHIALIS ANTICUS
Coraco-brachialis
Short head of Biceps
Long head of Biceps
BICEPS
Expansion of Biceps tendon (Bicipital fascia)
Attachment of Biceps tendon to the bicipital tuberosity of the Radius
Attachment of long head of Biceps
Attachment of short head of Biceps and Coraco-brachialis
Coraco-brachialis insertion
Brachialis anticus origin
Brachialis anticus insertion
Biceps insertion

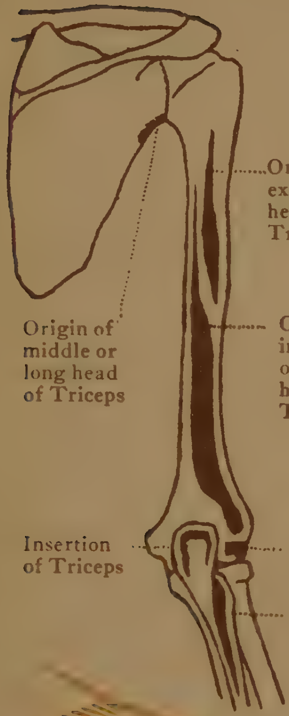
The BICEPS muscle is divided above into two portions or heads. The short head arises from the coracoid process of the Scapula along with the Coraco-brachialis. The long head arises by a long and rounded tendon, from the upper margin of the glenoid cavity of the Scapula, the socket of the shoulder-joint. This tendon passes over the head of the Humerus and lies in the bicipital groove, in which it is held by an expansion of the Pectoralis major tendon. The two portions of the muscle join about the middle of the arm, and the muscular mass terminates above the elbow in a flattened tendon inserted into the back part of the tuberosity of the Radius. Opposite the bend of the elbow the tendon gives off from its inner side, a boad aponeurosis, the Bicipital fascia, which is continuous with the deep fascia or sheath of the muscles of the forearm

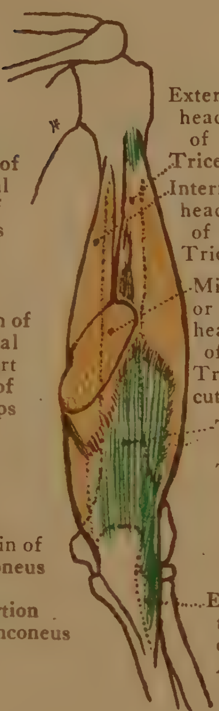
The CORACO-BRACHIALIS muscle arises from the coracoid process of the Scapula along with the short head of the Biceps. It is inserted into the Humerus at the middle of the inner surface of the shaft, between the origin of the Triceps and Brachialis Anticus

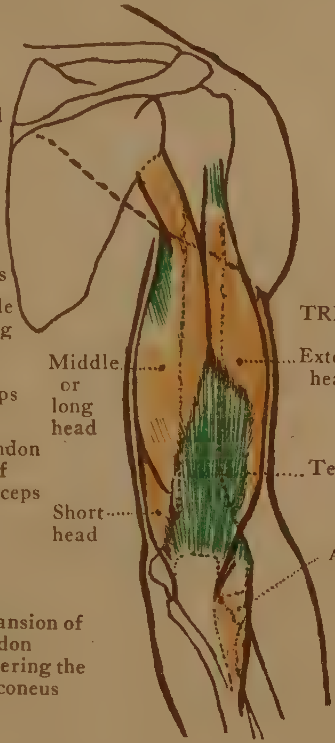
The BRACHIALIS ANTICUS is a broad muscle which covers the lower half of the front of the Humerus and the front of the elbow joint. It arises from the lower half of the front of the shaft of the Humerus, commencing above at the insertion of the Deltoid, which it embraces by two angular processes. Its fibres converge below to a thick tendon which is inserted into the coronoid process of the Ulna

James M. Dunlop, Del.

MUSCLES OF THE ARM—BACK VIEW.


Origin of external head of Triceps
Origin of middle or long head of Triceps
Origin of internal or short head of Triceps
Insertion of Triceps
Origin of Anconeus
Insertion of Anconeus


External head of Triceps
Internal head of Triceps
Middle or long head of Triceps cut
Tendon of Triceps
Expansion of tendon covering the Anconeus



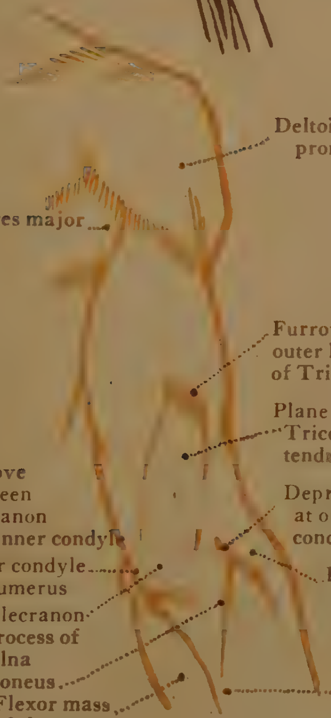

Deltoid prominence
Teres major
Furrow of outer head of Triceps
Plane of Triceps tendon
Groove between olecranon and inner condyle
Depression at outer condyle
Inner condyle of Humerus
Long radial extensor of the wrist
Olecranon process of Ulna
Anconeus
Ulnar furrow
Flexor mass of forearm

Diagram of the surface forms on the back of the arm

The TRICEPS muscle, situated on the back of the arm, extends the entire length of the back of the Humerus. It is divided above into three parts, named:

1. The middle or long head,
2. The external head,
3. The internal, or short head.

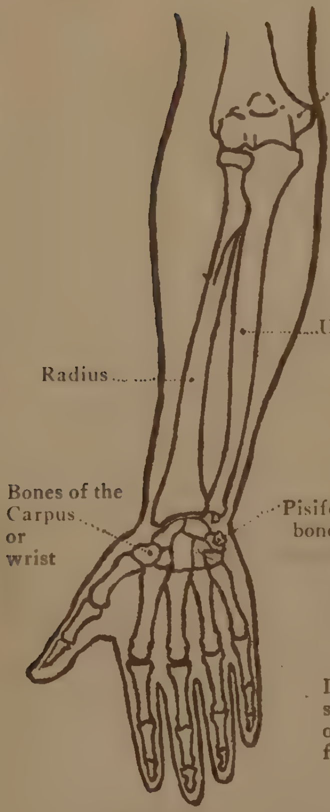
The middle or long head arises from a depression immediately below the glenoid cavity of the Scapula. The external head arises from the upper and outer part of the back of the Humerus. The internal head arises from the back of the Humerus and from its inner border, commencing above narrow and pointed and extending below near to the trochlear surface. The *common tendon* of the Triceps receives the muscular fibres from the three heads; it commences about the middle of the back of the muscle and causes a very important flattened surface form. It is inserted below into the olecranon process of the Ulna, an expansion of the tendon being continued downwards on the outer side, passing over the Anconeus muscle, to blend with the deep fascia of the forearm. The long head of the Triceps passes between the Teres minor and Teres major muscles.

The ANCONEUS muscle is a small triangular muscle, placed behind and below the elbow joint. It appears to be a continuation of the outer portion of the Triceps. It arises from the back of the outer condyle of the Humerus and is inserted into the side of the olecranon process and the upper fourth of the back of the shaft of the Ulna

JAMES M. DUNLOP, Del.

MUSCLES OF FRONT AND INNER SIDE OF FOREARM.

THE PRONATOR AND FLEXOR GROUP.



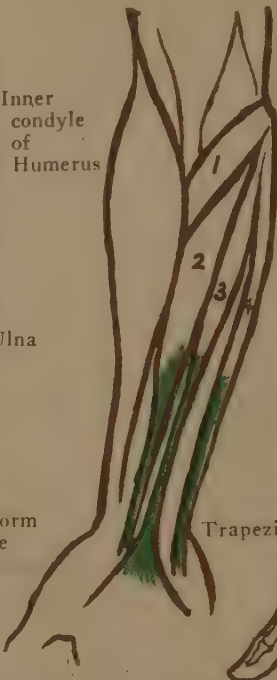
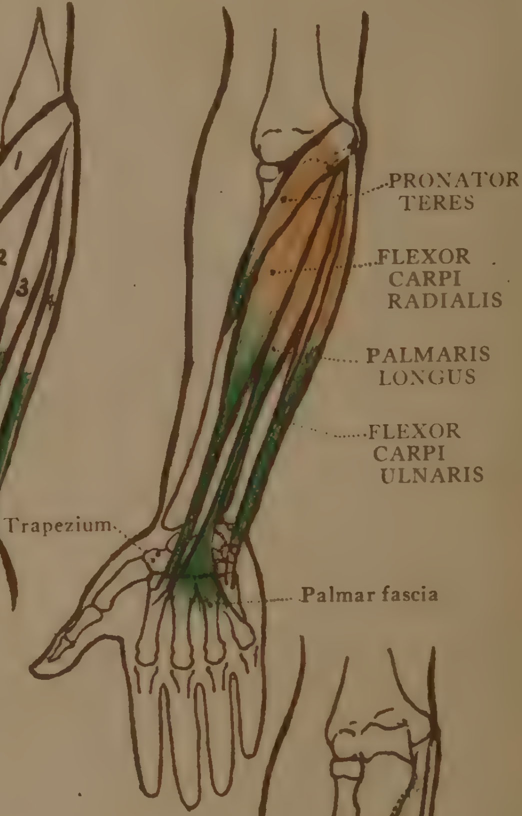


Diagram of the four superficial muscles of the front of the forearm



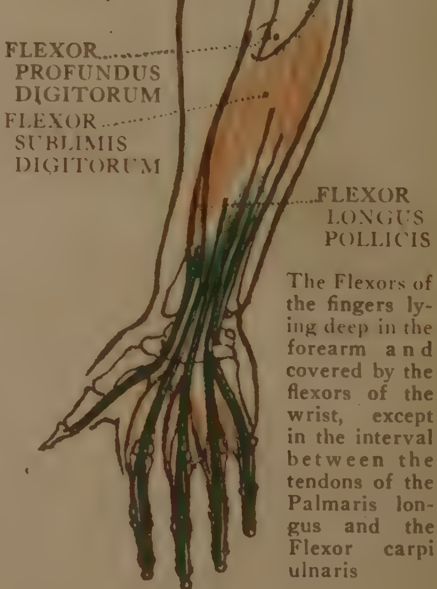
The PRONATOR and FLEXOR group. These muscles, which are situated on the front and inner side of the forearm, arise from the internal condyle of the Humerus by a common tendon

The PRONATOR TERES muscle passes obliquely across the forearm to its insertion at the middle of the outer surface of the shaft of the Radius

The FLEXOR CARPI RADIALIS muscle terminates below in a tendon which forms the lower two-thirds of its length. It is inserted into the base of the metacarpal bone of the index finger, passing through the annular ligament and through a groove (which is enclosed by a fibrous sheath) in the Trapezium bone of the wrist

The PALMARIS LONGUS muscle terminates in a slender flattened tendon which passes over the annular ligament and ends in the Palmar fascia

The FLEXOR CARPI ULNARIS muscle terminates in a tendon which occupies the anterior part of the lower half of the muscle, and is inserted into the pisiform bone, being further prolonged by ligaments to the 5th metacarpal bone and the unciform bone. Besides its attachment above to the inner condyle of the Humerus, this muscle also arises from the olecranon process and from the upper two-thirds of the posterior border of the Ulna



The Flexors of the fingers lying deep in the forearm and covered by the flexors of the wrist, except in the interval between the tendons of the Palmaris longus and the Flexor carpi ulnaris

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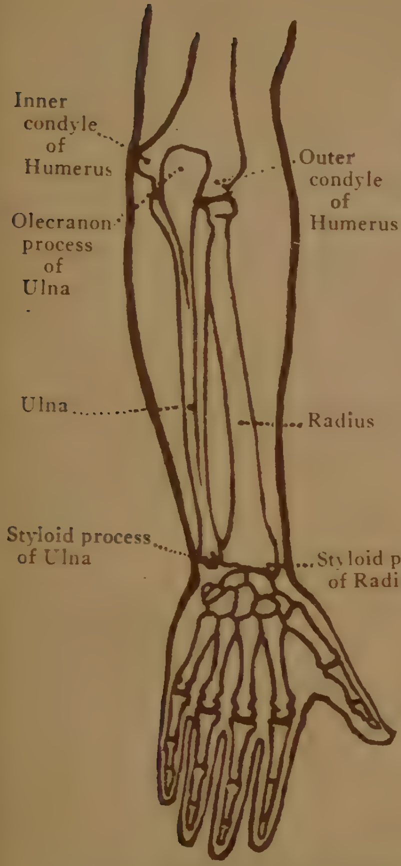
MUSCLES OF BACK AND OUTER SIDE OF FOREARM.

THE SUPINATOR AND EXTENSOR GROUP.



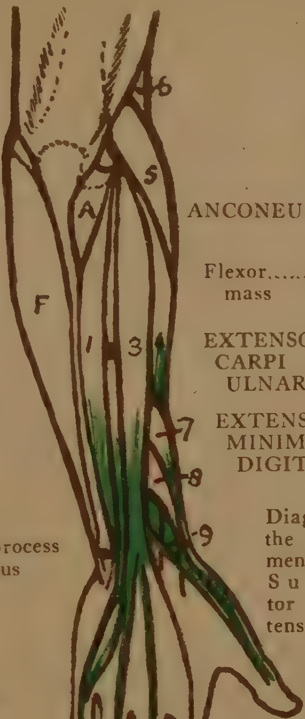
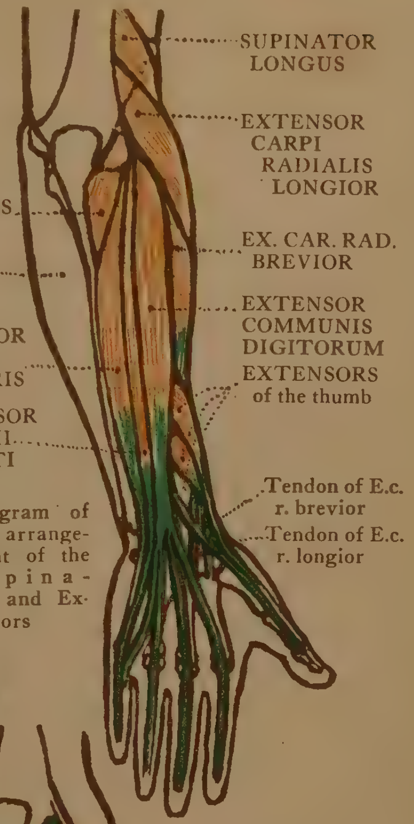
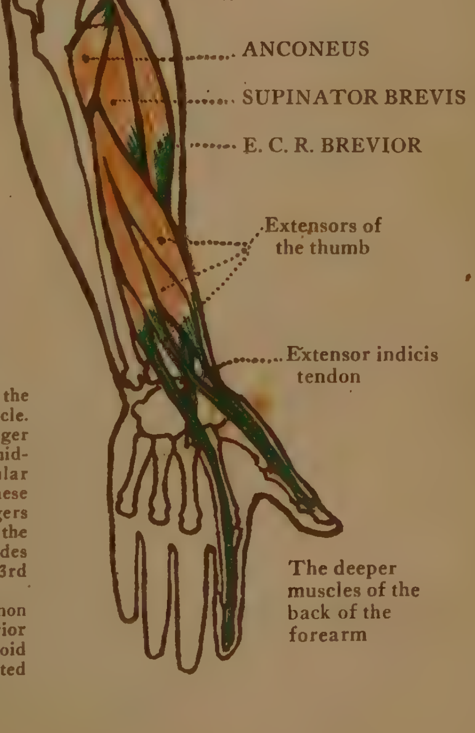


Diagram of the arrangement of the Supinator and Extensors





The deeper muscles of the back of the forearm

The SUPINATOR and EXTENSOR group

These muscles lie on the outer side and back of the forearm. It is important to note that they form a mass which commences on a higher level than that of the Pronator and Flexor group. The apex of this muscular mass arises from the Humerus, some distance above the elbow joint, emerging from between the Triceps and Brachialis anticus. The Supinator longus and the Extensor carpi radialis longior arise from the ridge above the outer condyle of the Humerus, and the rest of the group take origin from the outer condyle. The Extensors of the thumb form a separate group arising from the Radius and Ulna

The SUPINATOR LONGUS, fleshy in its upper two thirds, terminates in a flat tendon inserted in styloid process of Radius

The EXTENSOR CARPI RADIALIS LONGIOR terminates at the upper third of the forearm in a flat tendon which passes beneath the extensors of the thumb, and through a groove behind styloid process of Radius, to be inserted into base of metacarpal bone of index finger

The EXTENSOR CARPI RADIALIS BREVIOR tendon begins about the middle of the forearm and accompanies that of the preceding muscle. It is inserted into the base of the metacarpal bone of the middle finger

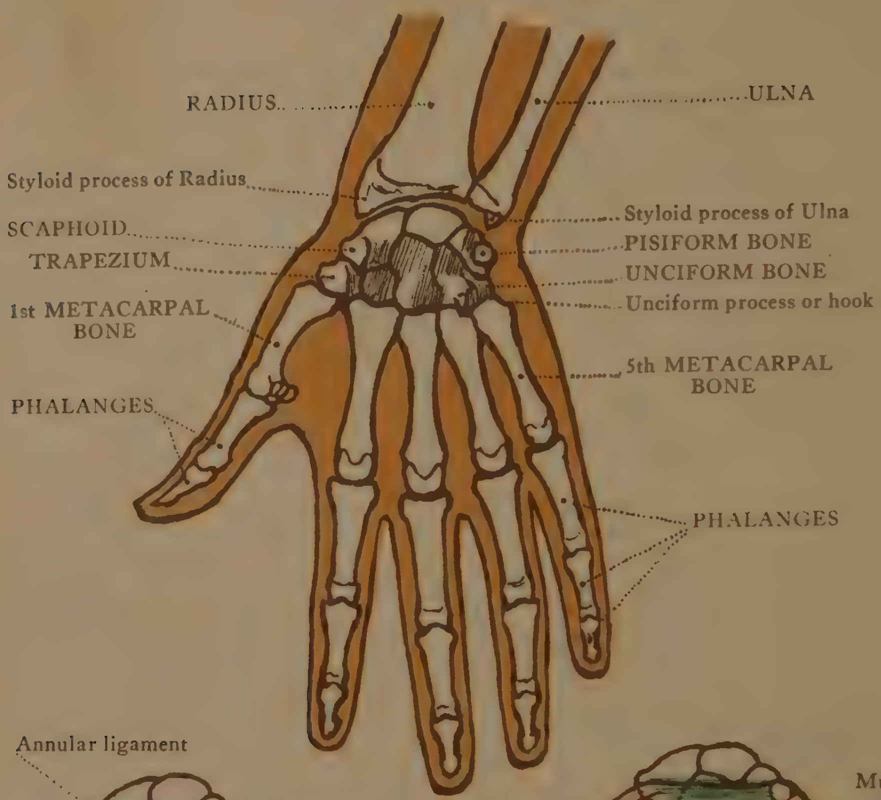
The EXTENSOR COMMUNIS DIGITORUM divides just below the middle of the forearm into three tendons, which pass through the annular ligament and then diverge, the innermost one dividing into two. These tendons are inserted into the second and third phalanges of the fingers

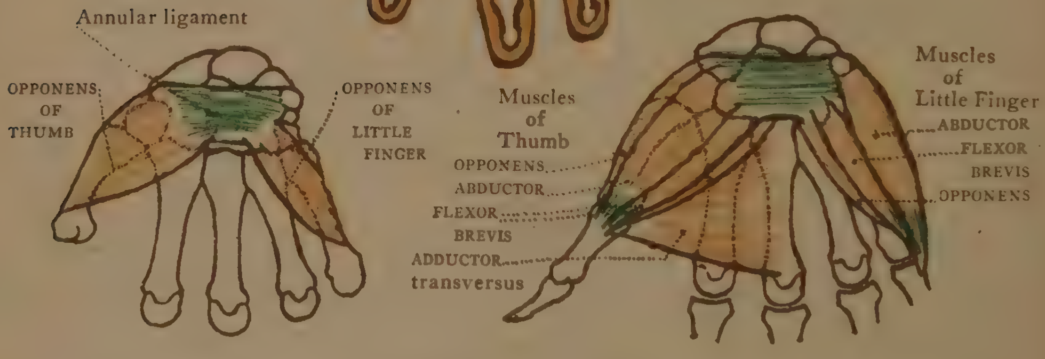
The EXTENSOR MINIMI DIGITI, a slender muscle connected with the preceding. Its tendon, after passing through the annular ligament divides into two, which, again uniting are inserted into the 2nd and 3rd phalanges of the little finger

The EXTENSOR CARPI ULNARIS. This muscle, besides the common ridge from the Humerus, also arises by an aponeurosis from the posterior border of the Ulna. Its tendon runs through a groove behind the styloid process of the Ulna, passes through the annular ligament, and is inserted into the base of the metacarpal bone of the little finger

JAMES M. DUNLOP, Del.

BONES OF THE HAND—Palmar View.





MUSCLES OF THE PALM

Muscles of the Thumb forming the Thenar eminence or ball of the thumb

1. OPPONENS POLLICIS
2. FLEXOR BREVIS POLLICIS
3. ABDUCTOR POLLICIS
4. ADDUCTOR POLLICIS } transversus and obliquus

Muscles of the little Finger, forming the Hypothenar eminence or ball of little finger

1. ABDUCTOR MINIMI DIGITI
2. FLEXOR BREVIS ,, ,,
3. OPPONENS ,, ,,

	Origin	Insertion
The ABDUCTOR MINIMI DIGITI	From the Pisiform bone	1st phalanx of little finger
The FLEXOR BREVIS ,, ,,	from unciform process of unciform bone and from the annular ligament	do. do.
The OPPONENS ,, ,,		Metacarpal bone

In the middle of the Palm are the Lumbricales, four small muscles, accessories to the deep Flexor of the fingers; and in the intervals between the metacarpal bones, are the Interossei muscles, 4 dorsal and 3 palmar

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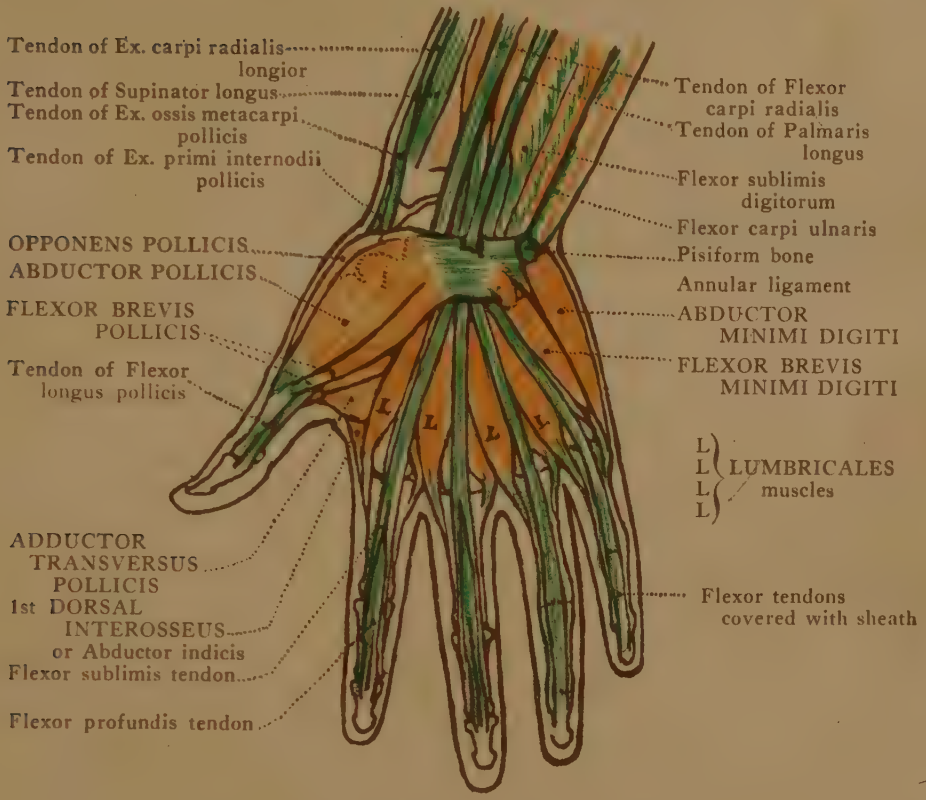
MUSCLES OF THE HAND—Palmar View.


Tendon of Ex. carpi radialis longior
Tendon of Supinator longus
Tendon of Ex. ossis metacarpi pollicis
Tendon of Ex. primi internodii pollicis
OPPONENS POLLICIS
ABDUCTOR POLLICIS
FLEXOR BREVIS POLLICIS
Tendon of Flexor longus pollicis
ADDUCTOR TRANSVERSUS POLLICIS
1st DORSAL INTEROSSEUS or Abductor indicis
Flexor sublimis tendon
Flexor profundis tendon
Tendon of Flexor carpi radialis
Tendon of Palmaris longus
Flexor sublimis digitorum
Flexor carpi ulnaris
Pisiform bone
Annular ligament
ABDUCTOR MINIMI DIGITI
FLEXOR BREVIS MINIMI DIGITI
L
L
L
L
LUMBRICALES muscles
Flexor tendons covered with sheath

The THUMB is provided with the following muscles:—
3 Extensors situated on the back of the forearm and hand;
4 Flexors, 1 Abductor and 2 Adductors, all muscles of the palm, except the Flexor Longus, which has its fleshy part deep in the front of the forearm.

EXTENSORS	
EX OSSIS METACARPI POLLICIS inserted into the	Metacarpal bone
„ PRIMI INTERNODII POLLICIS „ „ „	1st Phalanx
„ SECUNDI INTERNODII POLLICIS „ „ „	terminal Phalanx
FLEXORS	
OPPONENS POLLICIS arises from the Trapezium and annular ligament and is inserted into the	Metacarpal bone
FLEXOR BREVIS POLLICIS consists of two portions; the outer arises from the Trapezium and annular ligament and is inserted into the	1st Phalanx, outer side
The inner and deeper portion arises from the metacarpal bone of the thumb and is inserted along with the Adductor obliquus into the	1st Phalanx, inner side
A sesamoid bone is developed in each of the two tendons of insertion	
FLEXOR LONGUS POLLICIS, a deep muscle of the forearm having an extensive origin from the Radius; it is inserted into the	terminal Phalanx
ABDUCTOR and ADDUCTORS	
ABDUCTOR POLLICIS arises from Trapezium and annular ligament and is inserted into the	1st Phalanx
ADDUCTOR POLLICIS { obliquus, from the Os magnum, etc., transversus, from the metacarpal bone of the middle finger	inserted into 1st Phalanx

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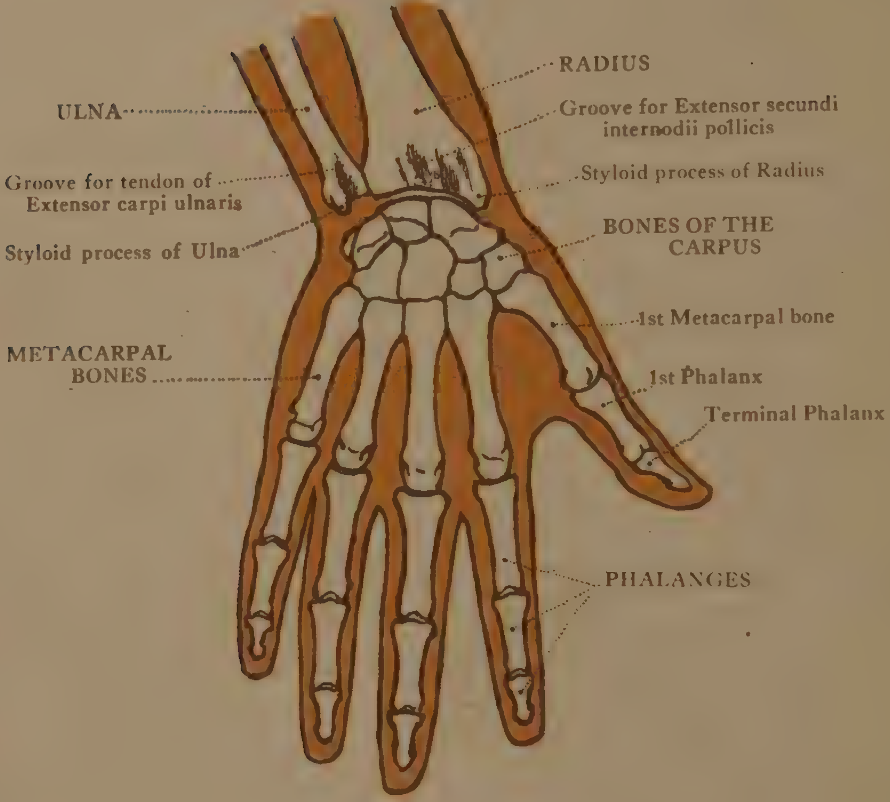
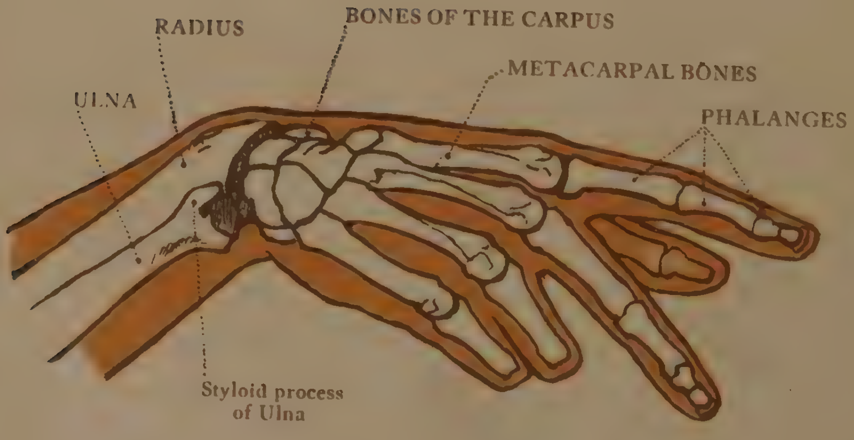
BONES OF THE HAND—Back View.





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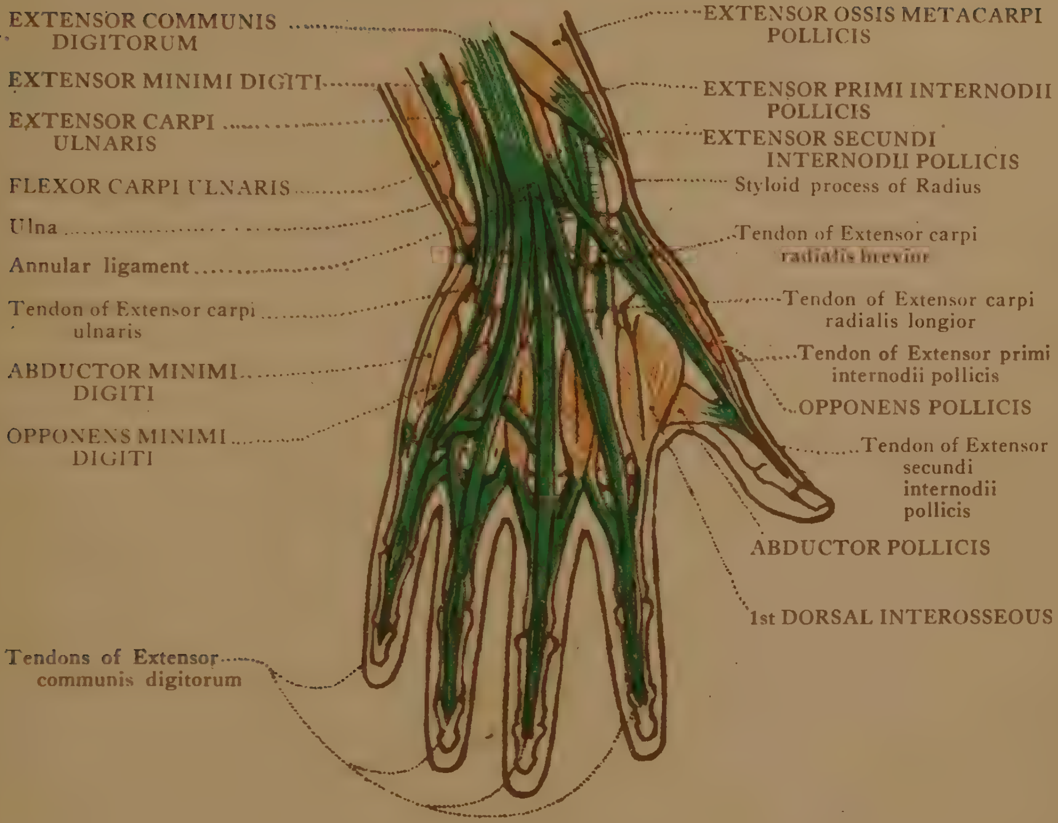
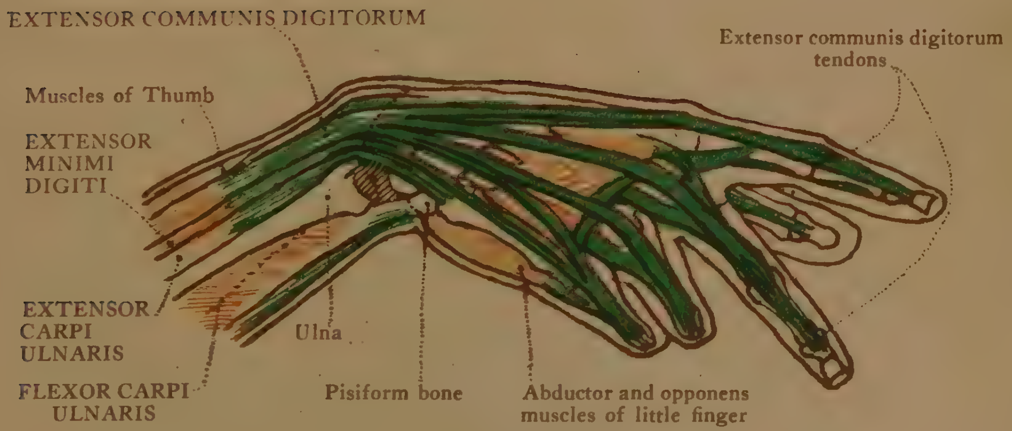
BACK OF THE HAND—Muscles.


EXTENSOR COMMUNIS DIGITORUM
EXTENSOR MINIMI DIGITI
EXTENSOR CARPI ULNARIS
FLEXOR CARPI ULNARIS
Ulna
Annular ligament
Tendon of Extensor carpi ulnaris
ABDUCTOR MINIMI DIGITI
OPPONENS MINIMI DIGITI
Tendons of Extensor communis digitorum
EXTENSOR OSSIS METACARPI POLLICIS
EXTENSOR PRIMI INTERNODII POLLICIS
EXTENSOR SECUNDI INTERNODII POLLICIS
Styloid process of Radius
Tendon of Extensor carpi radialis brevior
Tendon of Extensor carpi radialis longior
Tendon of Extensor primi internodii pollicis
OPPONENS POLLICIS
Tendon of Extensor secundi internodii pollicis
ABDUCTOR POLLICIS
1st DORSAL INTEROSSEOUS


EXTENSOR COMMUNIS DIGITORUM
Muscles of Thumb
EXTENSOR MINIMI DIGITI
EXTENSOR CARPI ULNARIS
FLEXOR CARPI ULNARIS
Ulna
Pisiform bone
Abductor and opponens muscles of little finger
Extensor communis digitorum tendons

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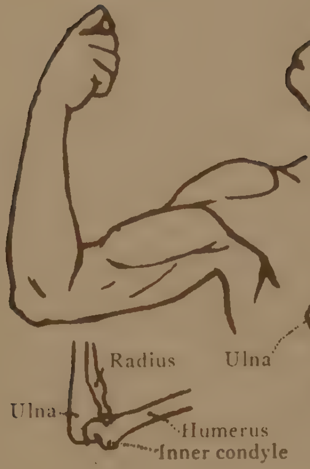
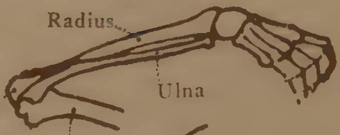
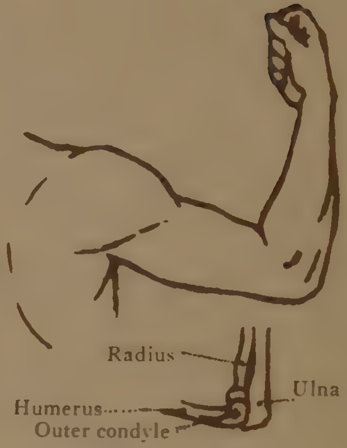
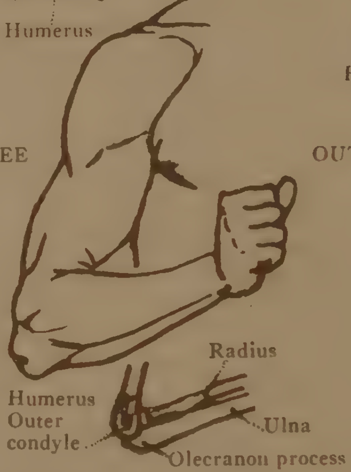
SURFACE FORMS OF THE LIMBS.

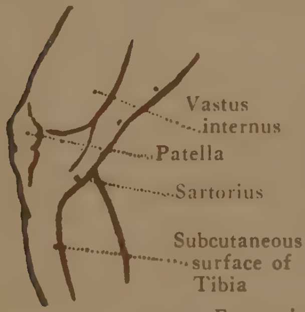




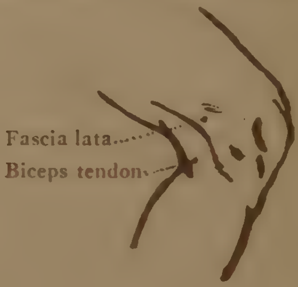




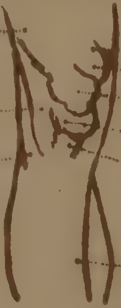
INNER VIEW OF BENT KNEE



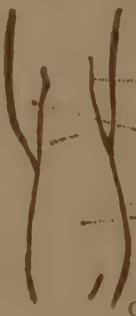
OUTER VIEW OF BENT KNEE



Front view of knee

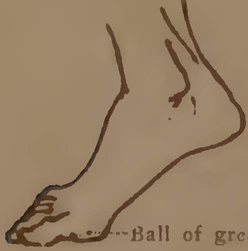


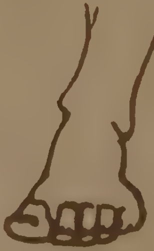
Back view of knee



INNER VIEW OF FOOT

OUTER VIEW OF FOOT





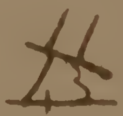
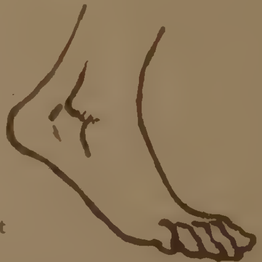


Diagram
using the figure
43 to suggest the
block shape of foot
in front view



JAMES M. DUNLOP, Del.

BONES OF THE UPPER AND LOWER LIMBS.

Bones of the
UPPER LIMB,
front view, with the fore-arm in the position of
PRONATION

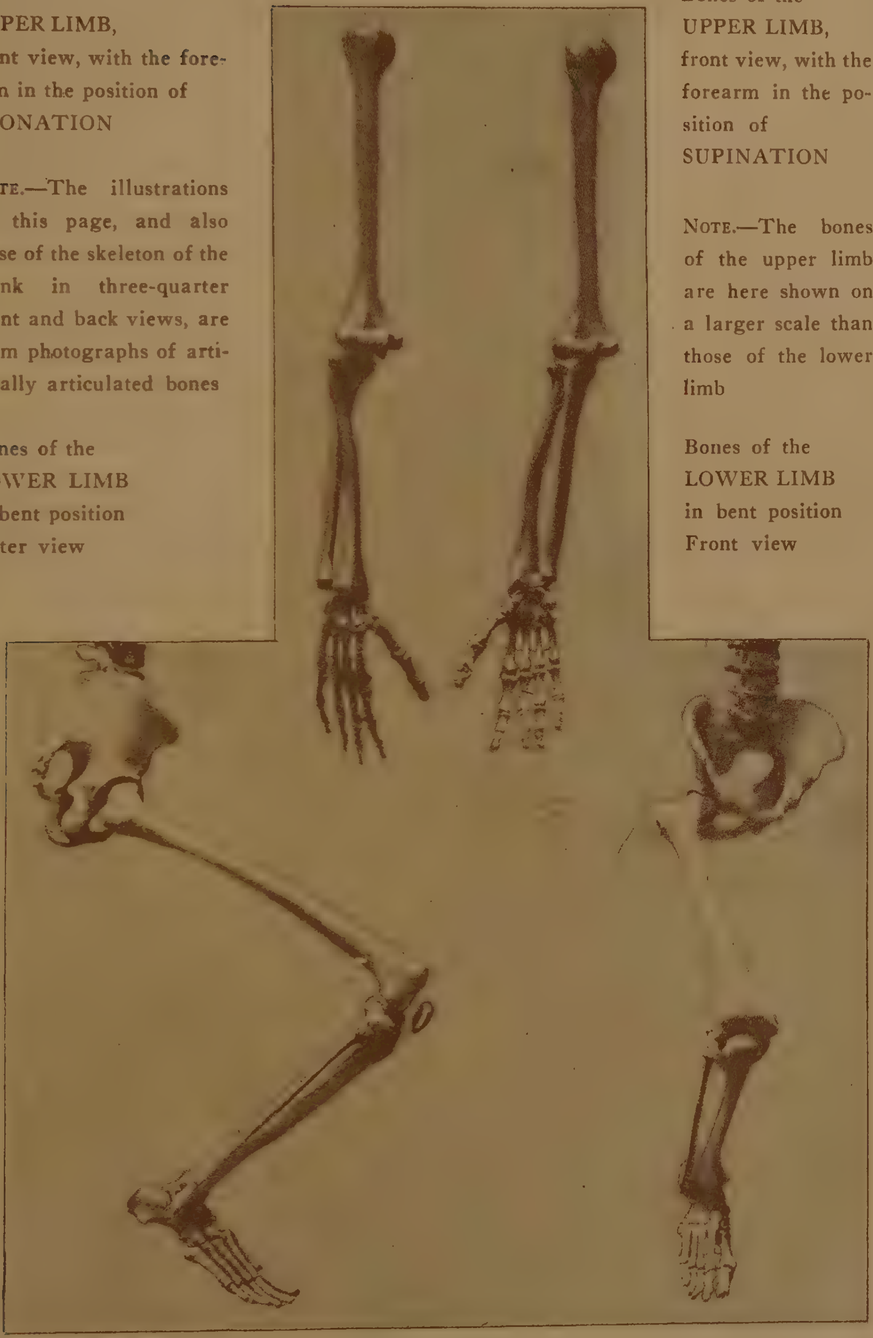
NOTE.—The illustrations on this page, and also those of the skeleton of the trunk in three-quarter front and back views, are from photographs of artificially articulated bones

Bones of the
LOWER LIMB
in bent position
Outer view

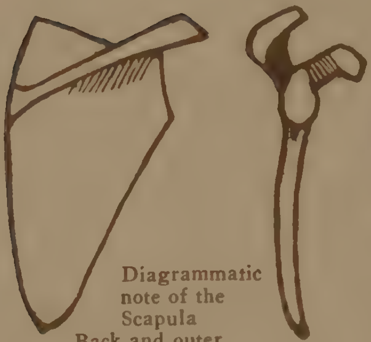
Bones of the
UPPER LIMB,
front view, with the forearm in the position of
SUPINATION

NOTE.—The bones of the upper limb are here shown on a larger scale than those of the lower limb

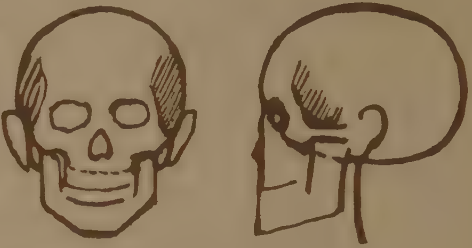
Bones of the
LOWER LIMB
in bent position
Front view



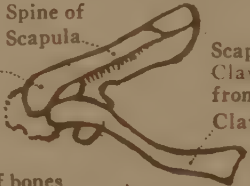
DIAGRAMMATIC NOTES OF VARIOUS BONES.



Diagrammatic note of the Scapula
Back and outer views



Suggestions for block shape of skull in front and side views, using a circle for cranium in front view and an egg shape in side view



Scapula and Clavicle as seen from above

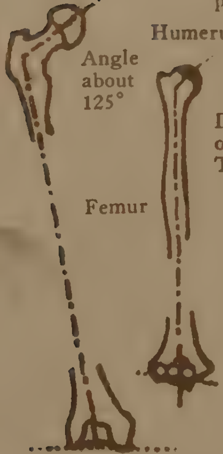
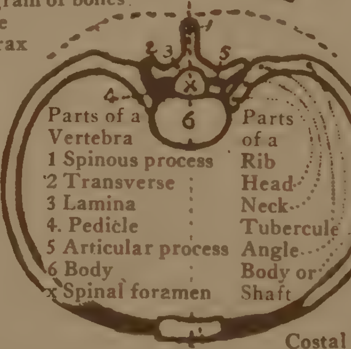
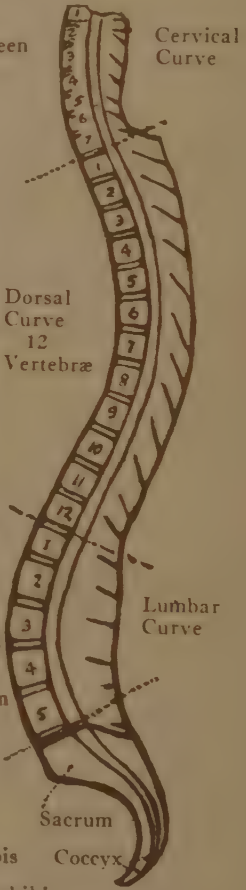


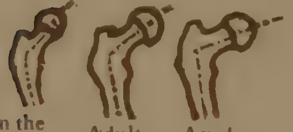
Diagram of bones of the Thorax

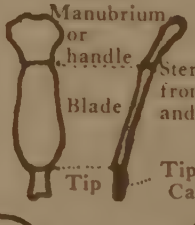




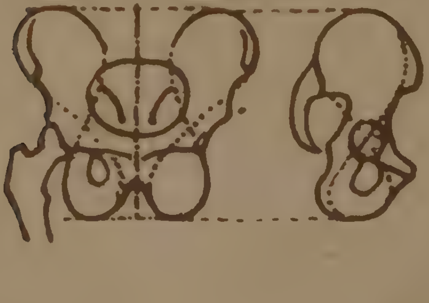
Curves of the Vertebral Column

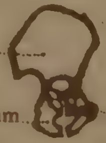
Neck of the Femur





Diagrams of the Pelvis, using the figure 8 as a memory aid





The hip-bone in the child; the three parts become united and form one bone in the adult.

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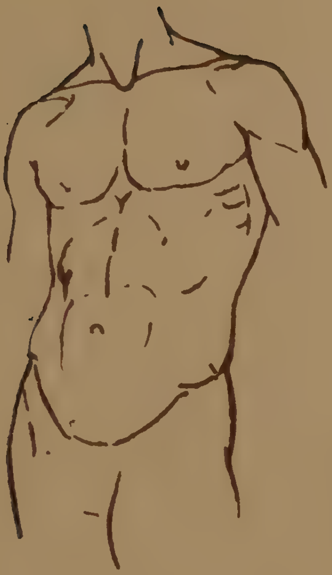
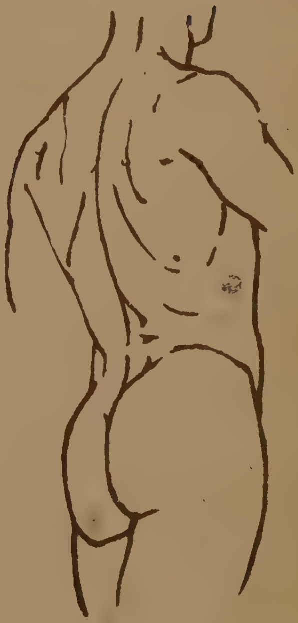
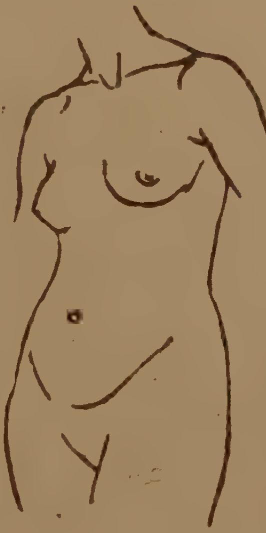
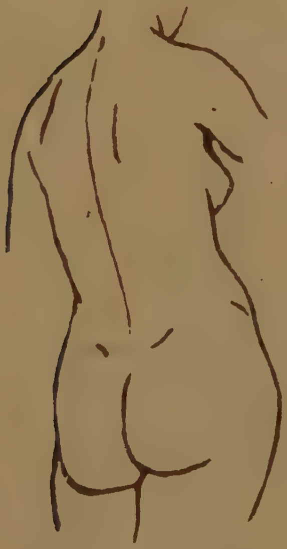


THREE-QUARTER FRONT AND BACK VIEWS OF THE MALE TORSO OR TRUNK.

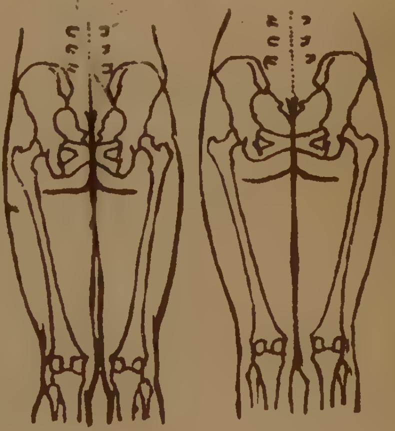




THREE-QUARTER FRONT AND BACK VIEWS OF THE FEMALE TORSO.



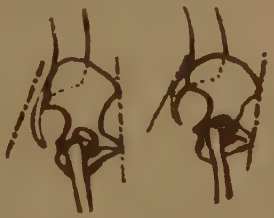
DIAGRAMS SHOWING THE PELVIC BONES AND THE THIGH BONES IN BACK VIEW IN THE MALE AND FEMALE.



BACK VIEW IN THE MALE.

BACK VIEW IN THE FEMALE.

DIAGRAMS OF SIDE VIEW OF PELVIC BONES SHOWING INCLINATION IN MALE AND FEMALE.



MALE PELVIS.

FEMALE PELVIS.

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THREE-QUARTER FRONT VIEW OF SKELETON.

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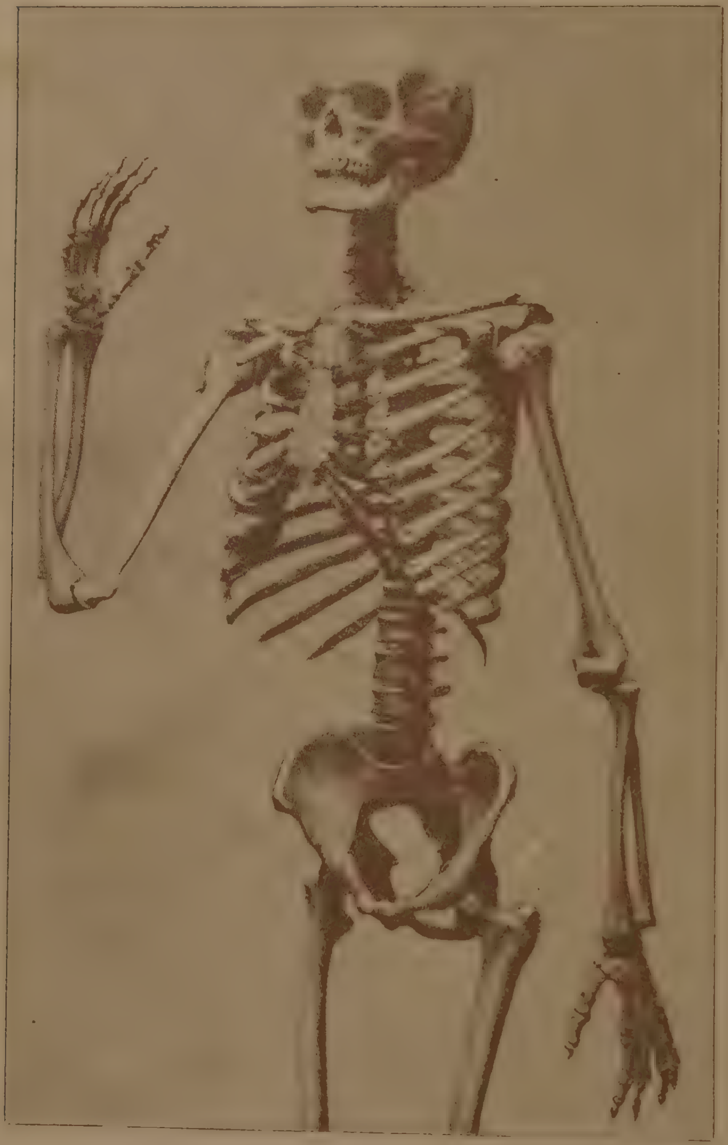

THREE-QUARTER BACK VIEW OF SKELETON.

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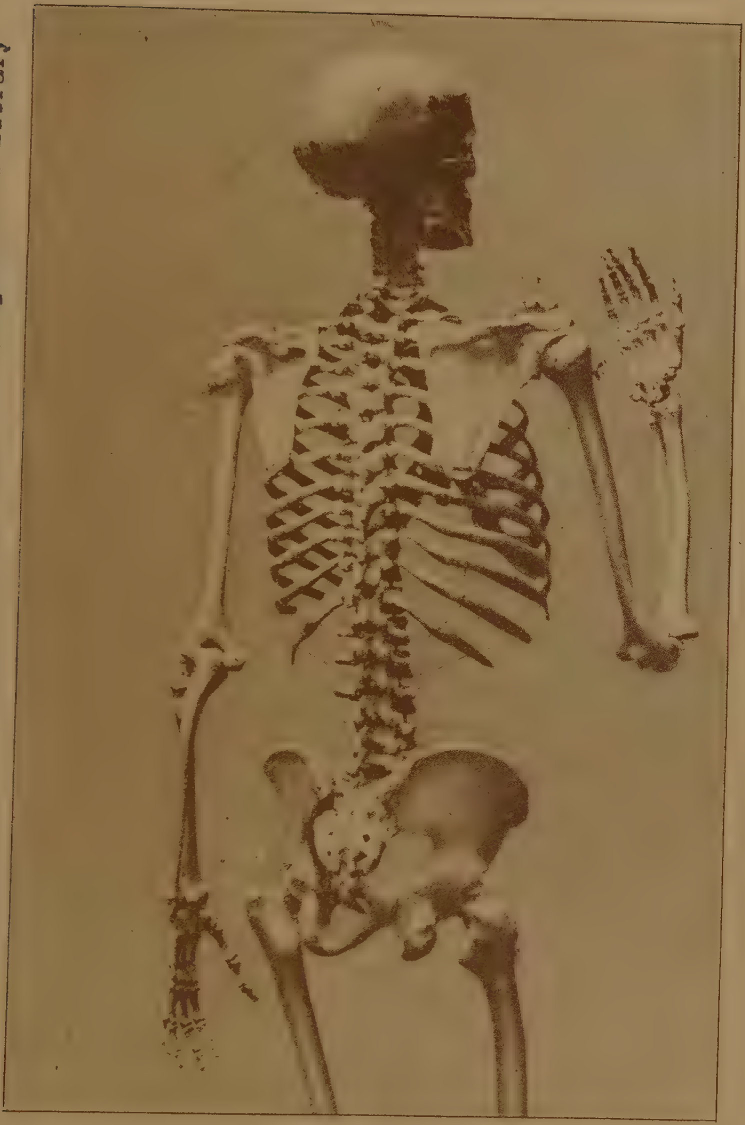
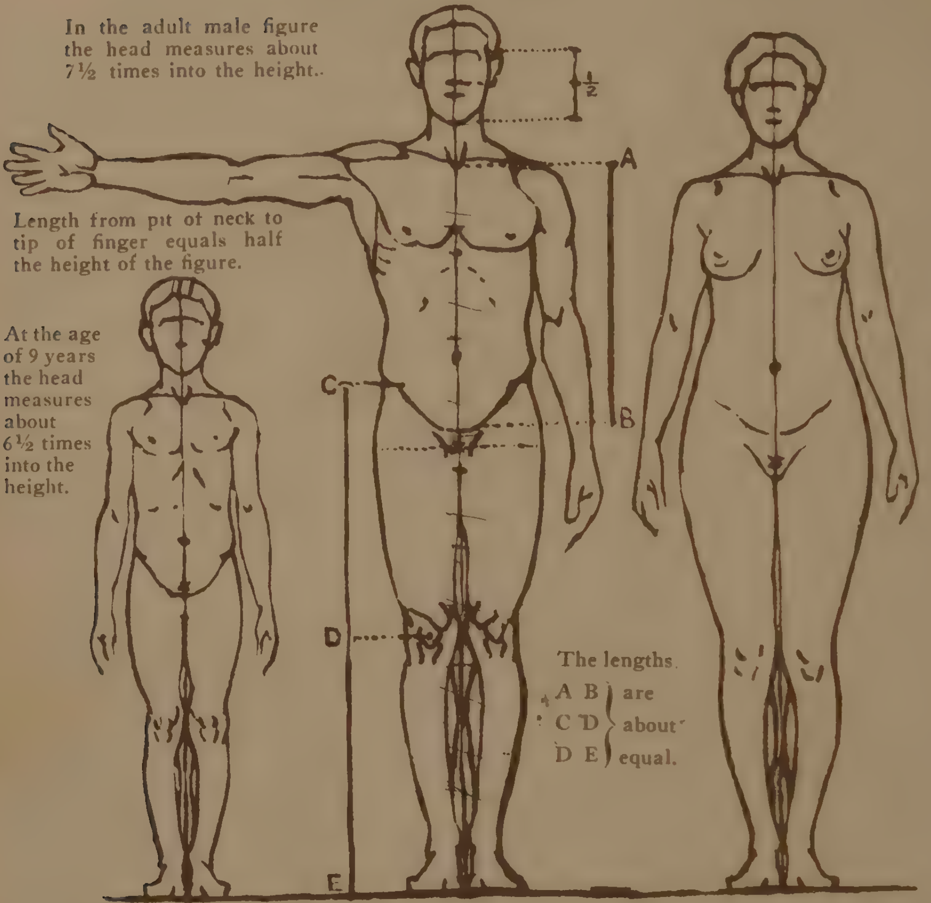


DIAGRAMS WITH NOTES ON PROPORTION.



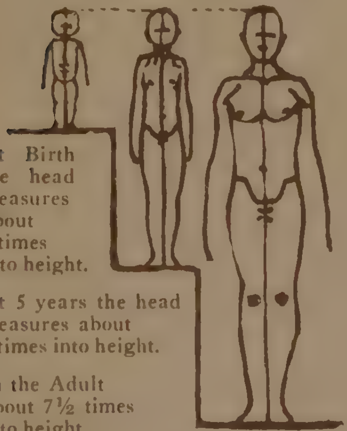
In the adult male figure the head measures about 7½ times into the height.

Length from pit of neck to tip of finger equals half the height of the figure.

At the age of 9 years the head measures about 6½ times into the height.

The lengths A B, C D, D E are about equal.

Relation of Head to height of figure.
At Birth. 5 years. Adult.



At Birth the head measures about 4 times into height.

At 5 years the head measures about 6 times into height.

In the Adult about 7½ times into height.

In the adult male figure, in the upright position, the distance from the top of the head to the pit of the neck measures about 5½ times into the height; this distance is about equal to the greatest width at the hips, or middle of the height of the figure. The greatest width at the shoulders, at the fullest point of the deltoid muscle, is about equal to 2 heads, or more than one quarter of the height.

In the female figure, the distance from the top of the head to the waist is about ½ of the height. The width at the shoulders is slightly less proportionately than in the male figure, but the width at the hips is proportionately, or even absolutely, greater in the female, and is at a lower level, being a little below the great trochanters. The width at the hips measures about 4⅔ times into the height, and is about equal to the distance from the pit of the neck to the umbilicus.

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